Blood Road Muck Mitigation Site

LRB-2019-01208

Prepared by:
Ducks Unlimited New York In-Lieu Fee Program
LRB-2010-00673 (ILFP)

DUCKS UNLIMITED | GREAT LAKES & ATLANTIC REGION

Photo: Zillow

To be considered by:
United States Army Corps of Engineers
Interagency Review Team Chairs

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The Ducks Unlimited (DU) mission focuses on protecting and restoring wetland resources critical to sustaining North America's waterfowl populations. DU utilizes a scientific approach to prioritize its conservation and mitigation activities. At a high-level, conservation priorities are identified by a team of international biologists made up of waterfowl and conservation experts spanning government, academia, and NGO sectors as described in the North American Waterfowl Management Plan (NAWAMP; United States Fish and Wildlife Service 1986, 2012). DU's applied version of this plan, The International Conservation Plan identifies portions of New York as priority landscapes for waterfowl conservation (Ducks Unlimited, 2005, 2019). Furthermore, the northeastern United States and adjacent Canada support an estimated 7.6 million breeding waterfowl, 2.7 million wintering waterfowl, and four to five million migrating waterfowl.

DU established the New York In-Lieu Fee Program (DU-NY ILF Program) to provide a third-party compensatory mitigation option for unavoidable wetland impacts in this priority landscape. DU has developed a suite of GIS-planning tools to aide in the identification of wetland restoration and protection opportunities within these Service Areas following techniques described by Hunter et al. 2012 and Raney and Leopold 2018. DU's top-down prioritization of landscapes and significant wetland features within those landscapes enables DU to identify priority areas for wetland conservation and mitigation activities on a watershed-scale. DU thoroughly evaluated wetland restoration opportunities in the Buffalo-Eighteenmile Creek Service Area (SA) (Figure 1) prior to coordinating the selection of this site with the IRT.

This plan describes an approach to provide mitigation at a 28.59-acre "Site" (Blood Road Muck) protected by DU Lands (DUL), a DU subsidiary land-trust (Figure 2) in the Buffalo-Eighteenmile Creek Service Area. The Site is located within a Great Lakes Area of Concern and a regional priority area for waterfowl conservation. This mitigation plan has been prepared and will be implemented by DU in accordance with 33 CFR 332.4, the "U.S. Army Corps of Engineers New York District Compensatory Mitigation Guidelines" and the "Guidelines for Mitigation Banking in Ohio" (currently used by the U.S. Army Corps of Engineers Buffalo District). A Mitigation Plan is submitted for public comment followed by Interagency Review Team review for potential approval.

Figure 1. Site Location and Service Area.
Approximate coordinates Latitude: 42°47'23.58" N and Longitude: 78°36'00" W. The Site is accessed from 2670 West Blood Road, East Aurora, NY. This Site serves the Buffalo-Eighteenmile Creek Service Area, comprised of the 8-digit HUC: 04120103.

Figure 2 View of the Site.
The 28.59-acre property is owned by DU Lands LLC. (DUL). DUL is a wholly owned subsidiary of Ducks Unlimited.

1. Introduction and Objectives

The primary goal of the Blood Road Muck Mitigation Site (hereafter: Site) is to provide wetland reestablishment, rehabilitation, and preservation to compensate for wetland loss. The Buffalo-Eighteenmile Creek Watershed has a high incidence of wetlands that have suffered from past drainage activities evident when reviewing aerial imagery, including forested and open peatlands that are now regionally uncommon. This project offers an important opportunity to restore now rare wetland types – forested and open peatlands.

More specifically this site provides an opportunity to:

- Replace wetland functions lost at impact sites and address threats identified in the DU NY ILF Compensation Planning Framework
- Reestablish wetland acreage for a regionally rare and biologically significant wetland type
- Reduce greenhouse emissions through a reduction/elimination of farming activities at the mitigation site
- Provide new habitat and or foraging opportunities for wildlife including species of greatest conservation need
- Provide a buffer and improve habitat conditions along a tributary of Buffalo Creek
- Provide habitat for migratory waterfowl
- Permanently protect the site for conservation purposes

2. Site Selection

2.1 Site Description

The Site is located at Latitude: 42°47’23.58” N and Longitude: 78°36’00” W accessed by a shared driveway from West Blood Road in the Town of Elma, Erie County, New York in the Buffalo-Eighteenmile Creek Service Area (8-digit HUC 04120103) (Figure 1). A reciprocal access agreement with the neighboring homeowner was recorded in the lands of Erie County enabling ingress/egress to the site. This parcel originally included a house and three outbuildings along West Blood Road. Upon purchasing the property, DUL subdivided a 1.4-acre residential parcel, which included all of the structures, from the remaining 28.59-acre Site retained for

mitigation. Due to residential zoning requirements, all of the frontage along West Blood Road is contained within the 1.4-acre parcel. Access to the Site has been provided through a Reciprocal Access and Maintenance Agreement granting shared use of the driveway from West Blood Road. DU, its agents and subsidiaries retained rights to manage and hydrologically influence the property through a Site Access Management and Overland Flowage Easement (SAMOFE) that was reviewed by USACE prior to execution (Figure 2; Appendix D, Appendix H) The SAMOFE prohibits the owner of the lot from manipulating the hydrology or managing the property in a manner inconsistent with the conservation values of the site.

This site was selected because it addresses the threats listed in the DU NY ILF Program Compensation Planning Framework, including fragmentation, urbanization and conversion to agriculture and because of its unique potential to reestablish a medium fen, a regionally rare and biologically significant wetland type within a Great Lakes Area of Concern (Edinger et al., 2014; Medium fens are moderately minerotrophic (calcium, magnesium influenced) peatlands that have pore-water pH of 6.2-6.9 and typically support high densities of rare and threatened species, nearby medium fens in similar topographic settings provide a high degree of support that this is drained fen site (NYNHP, 2015; Raney & Leopold, 2018; Sjörs, 1950) During site inspections extensive drainage tile, ditching, and the presence of muck soils indicated the site was formerly a wetland. Some species indicative of medium fens were also encounted including Poison Sumac. Suitable conditions for reestablishing wetland acreage exist at the site in areas of farmed Palms muck. Hydrological conditions are described further in Section 6.2, in the Wetland Delineation Report (Appendix A), and are shown in the Work Plan (Appendix B). The Site spans 28.59-acres and is presently protected by DUL ownership. A conservation easement encompassing the Site will be established to permanently protect natural areas on this property.

The wetland mitigation plan takes into consideration priorities identified in the New York State Wildlife Action Plan (SWAP) (NYSDEC, 2015). These include protection and restoration of northern peatland, the restoration and enhancement of riparian buffers, and the control of invasive and problematic native plant species. In addition to the wetland restoration activities at the Site, upland buffer areas will be planted to native upland trees and shrubs. The Site will also provide important benefits to water quality, as the New York State Department of Environmental

Conservation (NYSDEC) identifies stream bank erosion and silt/sediment loads as a concern in this watershed (NYSDEC, 2010). The Site contains approximately 24.5-acres that has been in agricultural use under a rotation of fruit and vegetable crops, while the surrounding area is experiencing a shift from largely agricultural to residential land use. Protection and restoration of this property, with much of the Site being planted to woody vegetation, will reduce streambank erosion and improve water quality within the watershed.

The Site already provides breeding and migration habitat for waterfowl species such as mallard and wood duck, that is likely to improve through restoration activities. Several bird species of greatest conservation need (SGCN) identified in the State Wildlife Action Plan (SWAP, NYSDEC, 2015) have been observed in the vicinity of the Site. Specifically, the objectives of this plan are to:

- re-establish 2.52 acres of palustrine emergent (PEM) wetlands
- re-establish 8.58 acres of palustrine forested (PFO) wetlands
- rehabilitate 3.53 acres of PEM wetlands
- rehabilitate 8.98 acres of PFO wetlands
- rehabilitate 1.00 acres of upland buffer
- preserve 2.11 acres of open water
- preserve 1.70 acres of upland buffer

A total of 28.42 acres of habitat will be preserved or restored through this project.

3. Site Protection Instrument

In 2020, DUL DU Lands, LLC (DUL) a wholly owned subsidiary of DU purchased a 30.00 acre property that included a residence in order to secure the property protected for use as an ILF site. DUL, subdivided out the house and sold it in 2021. Due to municipal lot-depth requirements, the residential property, which was sold to the neighboring homeowner had to extend into the northern edge of the muck field. DU, DUL and the homeowner executed a USACE-approved Site Access and Management and Overland Flowage Easement (SAMOFE) for 0.48 acres (as shown in Figure 2) agreement that included provisions for DU and its agents to continue managing, accessing, and hydrologically influencing a portion of the residential property. The SAMOFE was recorded to the Deed in the lands of Erie County. The area under the SAMOFE will not be included in the Conservation Easement as part of the protected property, and is excluded from credit production and any and all performance requirements under this Instrument

Amendment as it lies outside of the Site constituting the Protected Property. The SAMOFE area may be managed by DU. The Protected Property limits are coincident with the property boundary as shown in Appendix D.

The SAMOFE prevents the residential owner and any future residential owners from undertaking actions that would be detrimental to the purpose of restoring and conserving the Protected Property as a site for wetland mitigation purposes. The sale of the house enabled a significant reduction in the cost-basis for the Protected Property below typical costs per acre, thereby providing an opportunity to develop a larger site than would have been practical under typical cost-constraints in this watershed (residual land expense less the sale of the house is provided in Appendix F).

DUL anticipates transfer of the retained property (Figure 2) to a local land trust who will serve as the Long-term Steward. Wetlands America Trust, a wholly owned subsidiary of DU, and an accredited Land Trust will be granted a Conservation Easement at the time of fee ownership transfer. The Easement over the protected property will meet the site protection requirements of 332.7(a)(1). Signs shall be erected and maintained that identify the protected property for conservation purposes. It is anticipated that the Western New York Land Conservancy (WNYLC) will be the Long-term Steward. WNYLC has nearby conservation holdings, making them knowledgeable about the types of threats and management concerns that may arise during long-term management of this site. In the event WNYLC is unable to serve as the Long-term Steward, DU will stand in this role until a long-term manager acceptable to the USACE and IRT is identified. Following approval of the Instrument Amendment, and upon transfer of the property, WAT will be granted a perpetual Conservation Easement on the Site in a form approved by the Corps of Engineers. An endowment will be established with funds sufficient to support annual monitoring of the Conservation Easement, and a separate endowment will be established to support long-term stewardship activities identified in the Long-Term Management Plan. Any transfer of the property or transfer of interest in the Mitigation Property from the Sponsor to another party requires IRT consultation and USACE approval. Any such sale or conveyance made without the prior written concurrence of USACE constitutes default and USACE may take action accordingly.

With the exception of activities approved in this Plan and the associated Permit affirmation, or activities approved by the USACE, no further alterations to the Protected Property – defined as the area under the Conservation Easement Boundary limits shall occur (Appendix D). Prohibited alterations include but are not limited to:

1. **General**. There shall be no future fillings, flooding, excavating, mining, or drilling; no removal of natural materials (soil, sand, gravel, rock, minerals, etc.); no dumping of materials; and no alteration of the topography which would materially affect the Protected Property in any manner, except as authorized by the Permit, ILFP Instrument, Instrument Amendment, and any modifications thereof.
2. **Waters and Wetlands**. In addition to the general restrictions above, within the Protected Property there shall be no draining, dredging, damming, or impounding; no changing the grade or elevation, impairing the flow or circulation of waters, or reducing the reach of waters; and no other discharges or activity requiring a permit under applicable water pollution control laws and regulations, except as authorized by the Permit, ILFP Instrument, Instrument Amendment, and any modifications thereof.
3. **Trees/Vegetation**. On the Protected Property there shall be no clearing, burning, cutting, or destroying of trees or vegetation, except as may be necessary to protect public health or safety or as authorized by the Permit, ILFP Instrument, Instrument Amendment, and any modifications thereof; there shall be no planting or introduction of non-native or exotic species of trees or vegetation.
4. **Uses**. No agricultural, animal husbandry, industrial, residential development, mining, logging, or commercial activity shall be undertaken or allowed on the Protected Property.
5. **Structures**. There shall be no construction, erection, or placement of buildings, billboards, or any other structures, to include fences, parking lots, trailers, mobile homes, camping accommodations, or recreational vehicles, or additions to existing structures, on the Protected Property, except as authorized by the Permit, ILFP Instrument, Instrument Amendment, and any modifications thereof.
6. **New Roads**. There shall be no construction of new roads, trails, or walkways on the Protected Property without the prior written approval (including approval of the manner of construction) of DU, DUL, WAT and the USACE.
7. **Utilities**. There shall be no construction or placement of utilities or related facilities (including telecommunications towers and antennas) on the Protected Property without the prior written approval (including approval of the manner of construction) of DU, DUL, WAT and the USACE.
8. **Pest Control**. There shall be no application of pesticides or biological controls, including controls of problem vegetation, on the Protected Property without prior written approval (including approval of the manner of application) of DU, DUL, WAT and the USACE, or as authorized by the Permit, ILFP Instrument, Instrument Amendment, and any modifications thereof.
9. **Vehicular Use**. There shall be no use of any motorized vehicle or motorized equipment, and no use of any non-motorized bicycle anywhere on the Protected Property, except in the case of emergency, for the purpose of enforcement of applicable laws and regulations, for the purpose of monitoring compliance with the purposes of this Conservation Easement, or as authorized by the Permit, ILFP Instrument, Instrument Amendment, and any modifications thereof.

10. **Subdivision**. There shall be no division or subdivision of the Protected Property.
11. **Other Prohibitions**. Any other use of, or activity on, the Protected Property which is or may become inconsistent with the purposes of the Conservation Easement, the preservation of the Protected Property substantially in its natural condition, or the protection of its environmental systems, is prohibited, except as authorized by the Permit, ILFP Instrument, Instrument Amendment, and any modifications thereof.

DU will provide funds to the Long-Term Steward for the establishment of a stewardship endowment to be used for long-term monitoring and management of the site according to the long-term management plan (Described further in Section 10).

4. Determination of Credits

The IRT will determine credits based on wetland and upland buffer acres that meet or exceed performance standards, described in Section 8, and the credit ratios from the DU ILF Instrument as shown in Table 1. The credit generation table will be modified as monitoring provides specific information on the size and quality of the wetlands being re-established, rehabilitated, and enhanced. Should areas not meet all of the performance criteria described in Section 8 at the end of the 10-year monitoring period, the program sponsor may request more time to achieve goals, or request that the Corps of Engineers consider an appropriate reduction in credit generation, or the Corps of Engineers may require additional monitoring/corrective action at the ILF Site.

We propose an 8:1 credit ratio for deepwater aquatic habitats and/or vegetated shallows that develop within wetland reestablishment areas. For wetland rehabilitation areas, deepwater aquatic habitats and/or vegetated shallows will only be credited where they equal 10% or less of the rehabilitation areas on the site and are part of a well-integrated complex. Deepwater aquatic habitats and vegetated shallows do not meet Corps the definition of wetland and will thereby will not be credited the same as wetlands. Deepwater aquatic habitat is defined as any open water area that is either a) permanently inundated at mean annual water depths >6.6 ft, lacks soil, and/or is either unvegetated or supports only floating or submersed macrophytes, or b) permanently inundated areas ≤6.6 ft in depth that do not support rooted-emergent or woody plant species. Areas ≤6.6 ft mean annual depth that support only submergent aquatic plants are vegetated shallows, not wetlands. Vegetated shallows and/or deep-water habitats over 0.1 acre in size will be mapped in each monitoring report/delineation. It is not anticipated that any such

deepwater aquatic habitats will exist at the site.

Table 1 Credit Generation
The program sponsor anticipates the ILF Site will generate between 15.0 and 17.84 credits based on the following ratios and acreages for each mitigation activity.

Mitigation Activity	Acres	Ratio (Acres:Credits)	Credits Generated
PEM Re-establishment	2.52	1:1	2.52
PEM Rehabilitation	3.53	2:1	1.77
PFO Re-establishment	8.58	1:1	8.58
PFO Rehabilitation	8.98	2:1	4.49
Upland Buffer Rehabilitation	1.00	8:1	0.13
Upland Buffer Preservation	1.70	20:1	0.09
Open Water Preservation	2.11	8:1	0.26
Total	28.42		**17.84**

In order for the performance standard to be met, re-established wetlands must have a VIBI-FQ of 40. Whereas rehabilitated/enhanced wetlands must have a VIBI-FQ of 40 or a 10-point increase from the baseline, whichever is higher. Three baseline VIBI-FQ plots were established, and plant diversity recorded in representative areas of the drained muck field as shown in baseline conditions in Appendix B. A full list of plant species identified at the site can be viewed in Table 2. VIBI plots 1 through 3 scored 36.70, 33.53, and 25.06 respectively. These results reflect the decrease in plant diversity and increase in invasive species prevalence from north to south across the muck field. Based on these results, we anticipate an ecological lift will be achieved with the restoration of hydrology, implementation of invasive species control, and the planting plan in accordance with Ohio Wetland Mitigation Guidelines specifications.

The majority of the Site has been cleared and drained and was in fruit and vegetable crop production as recently as 2015. Much of the agricultural acreage within the lower Buffalo Creek watershed has been converted to residential development which continues to spread into upstream reaches. Wetlands that were previously cleared, drained, and fragmented for agriculture are now being encroached upon by housing, infrastructure and commercial development within the watershed (DU permit data). Furthermore, recent years have seen volatility in regulatory authority over wetlands (SWANCC, Rapanos, Clean Water Rule, Navigable Waters Protection Rule), and recent studies suggest that relaxation of the Clean Water Act such as those currently

in effect under the Navigable Waters Protection Rule may lead to further wetland losses(Dahl, 2011; Raney & Leopold, 2018).

Wetland A and portions of wetlands B and C will be treated for invasive species and all wetland reestablishment and rehabilitation areas will be seeded with a wetland seed mix (Table 3). Hydrology will be increased in these areas through a combination of drain tile disruption, grading, culvert removal, and ditch plugs (Appendix B), with the goal of restoring the site to forested and open peatlands. We propose a 1:1 credit ratio for re-established wetlands and 2:1 for the rehabilitated wetlands. Rehabilitation occurs where both hydrologic and plant community improvements are being made to an existing wetland.

The 2:1 ratio requested for rehabilitated wetlands reflects the significance of peatland site as rare community type in New York State(Edinger et al., 2014), and the fact that despite near complete drainage, the site has soils that are diagnostic of past hydrological influences, therefore tipping the delineation toward a disturbed wetland class . Peatland functioning is greatly inhibited by drainage activities, and while drained peatlands often still meet USACE delineation criteria due to the presence of soils diagnostic of past hydrological influences, their functioning when drained may be severely degraded and they may otherwise be functioning as an upland -i.e., no direct hydrology, few hydrophytes (e.g., Wassen et al., 1996). Additionally, drained peatlands become sources of greenhouse gases as previously anerobic conditions lead to aerobic respiration of plant material. The sponsor suggests that since this is a well-drained site (Figure 5), a ratio of at least 2:1 reflects the ecological lift that will be obtained by re-saturating the peat and muck present on site. Other wetland types may appear to be more completely converted from wetlands, but peatlands are still substantially impacted when drained, credit ratios should reflect this functional lift (Chimner et al., 2016). The existing PEM wetlands have been degraded through past disturbances including extensive drainage, tillage, and the introduction of invasive species. The project sponsor anticipates efforts to rehabilitate the hydrology and plant community on this site will be more similar to costs to reestablish wetlands, hence the request for a 2:1 ratio.

The proposed upland buffer rehabilitation areas occur along the western side of the main field. These areas were primarily used for access and staging of farm equipment and currently include a variety of herbaceous non-native species associated with cropland (*Ambrosia psilostachya*,

Lamium purpureum, *Taraxacum officinale*), providing very little diversity. This area will be planted to a native upland forest community, which will provide higher value for wildlife, greater diversity, and will serve to store additional carbon. The rehabilitated upland forest areas will add to the existing adjacent upland forest, improve the vegetation community, and provide year-round, high quality cover for wildlife. Due to the anticipated ecological lift and the cost of establishing upland forest, an 8:1 credit-ratio is proposed for upland buffer rehabilitation.

Preservation of the existing forested upland buffer will maintain habitat continuity within a residential area and a diverse array of cover-types to increase wildlife usage. Wetlands and streams without intact upland buffers typically have lower plant diversity, more invasives, higher nutrients, sediment inputs, and temperatures. A survey of the vegetation within the existing forested buffer area to the west of the muck field documented 43 species with an FQAI score of 26.08. Given the importance of buffers to Buffalo Creek, adjacent wetlands, and the quality of the habitat, a ratio of 20:1 for upland buffer preservation is recommended.

Provided that preservation is documented, and financial assurances are in place (conservation easement has been recorded) the credit release schedule will include:

- All of the credits associated with preservation will be released upon approval of this Instrument Amendment, recordation of the conservation easement, and execution of financial assurances.

- 10% of the credits for re-establishment and rehabilitation will be released upon approval of the Instrument Amendment.

- 20% of the credits for re-establishment and rehabilitation will be released at completion of planting and approval of the as-built drawing by the IRT.

- 15% of the credits for re-establishment and rehabilitation will be released after meeting all of the components of the first interim goal.

- 15% of the credits for re-establishment and rehabilitation will be released after meeting all of the components of the second interim goal.

- 15% of the credits for re-establishment and rehabilitation will be released after meeting all of the components of the third interim goal.

- 25% of the credits for re-establishment and rehabilitation will be released after the final performance standards have been met for the 10-year monitoring period, provided a USACE approved long-term management plan has been executed and funded and the

conservation easement endowment has been funded, and all other obligations and performance standards set forth in the instrument amendment and permit have been met.

5. Baseline Ecological Characteristics

5.1 Historic and Existing Plant Communities, Including Wetlands

The Site has a history of use as agricultural land dating back to at least the 1920's. Vegetation communities were surveyed between June and September of 2020, and are further described in the wetland delineation report in Appendix A. Here we provide a brief summary of the plant communities and provide photographs of current site conditions. The emergent wetlands within the muck field are dominated by rough bentgrass (*Agrostis scabra*), bristly sedge (*Carex comosa*), soft rush (*Juncus effusus*), sensitive fern (*Onoclea sensibilis*), and purplestem aster (*Symphyotrichum puniceum*). Six isolated pockets of common reed (*Phragmites australis*) covering an area of approximately 1.7 acres are found within the PEM zone, and will be addressed with mowing and spraying during and following construction activities. The upland forest along the western side of the Site is dominated by sugar maple (*Acer saccharum*), eastern white pine (*Pinus strobus*), and eastern hemlock (*Tsuga canadensis*), with American hornbeam (*Carpinus caroliniana*), eastern teaberry (*Gaultheria procumbens*), northern spicebush (*Lindera benzoin*), and cinnamon fern (*Osmundastrum cinnamomeum*) in the understory. Lesser numbers of peatland and fen species were recorded on the site that are likely a remnant of the historic plant community that existed, these include white turtlehead (*Chelone glabra*), tamarack (*Larix laricina*), great blue lobelia (*Lobelia siphilitica*), and rough-leaved goldenrod (*Solidago patula*).

Blood Road Muck Photos.

Agricultural drainage remains functional in the northern and eastern portions of the muck field, resulting in a water table below 22". These areas are currently dominated by FACU species and have the largest reestablishment potential. Photo taken August 27, 2019.

Much of the central and southern portions of the muck field delineated as wetland. Photo taken June 8, 2020.

Muck soils were at least 20” deep across the majority of the site.

An unnamed tributary to Buffalo Creek that has been channelized to provide drainage to the site, while existing perimeter and interior drainage ditches were tied into the stream. Planned grading adjacent to this stream will allow high flows to enter and remain on the site, without disturbing the stream itself. Photo taken August 17, 2020.

Evidence of tile drainage can be seen across the site. During construction, existing tile lines will be located and disrupted. Photos taken June 8, 2020.

In conjunction with construction activities, invasive species will be mowed prior to a broad-cast herbicide application. Photo taken June 9, 2020.

Upland forest borders the muck field to the west and south. Photo taken June 8, 2020.

The New York State Office of Parks, Recreation and Historic Preservation has approved the plan to remove a pole barn located within the Site Access and Overland Flowage Easement Area owned by the neighboring property owner. Photo taken August 27, 2019.

Cultural Resources

A request for a cultural and historic resources review was submitted to the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) and a response was received. According to OPRHP, no cultural resources will be affected by the wetland mitigation activities (Appendix C).

5.2 Site Land Use History, Including Structures

There is a pole barn located at the north end of the muck field ("w.f. shed" in Appendix D), on the residential parcel that was subdivided from the Site. This barn, built in 1977, will be demolished and removed as part of the planned mitigation activities. Through a site access, maintenance, and overland flowage easement, the current owner of the residential parcel has granted DU the right to remove this structure. Likewise, this demolition was included in the cultural and historic resources review and has been approved by OPRHP.

From a review of aerial photography dating back to 1928, fields within the Site have been continuously maintained for agricultural production (Figure 3). Additional land was cleared for agriculture between 1928 and 1995. More recent aerial photos indicate that portions of the muck field have been rotated in and out of fruit and vegetable production from 2005 to 2018. On-site reviews in August 2019 and June through September 2020 provided evidence of previous hydrological modifications, including ditching and tile drainage. Much of the Site's cropland areas appear to have historically supported more extensive wetlands prior to drainage and tillage activities. There are no known hazardous material sites located on or within the vicinity of the Site.

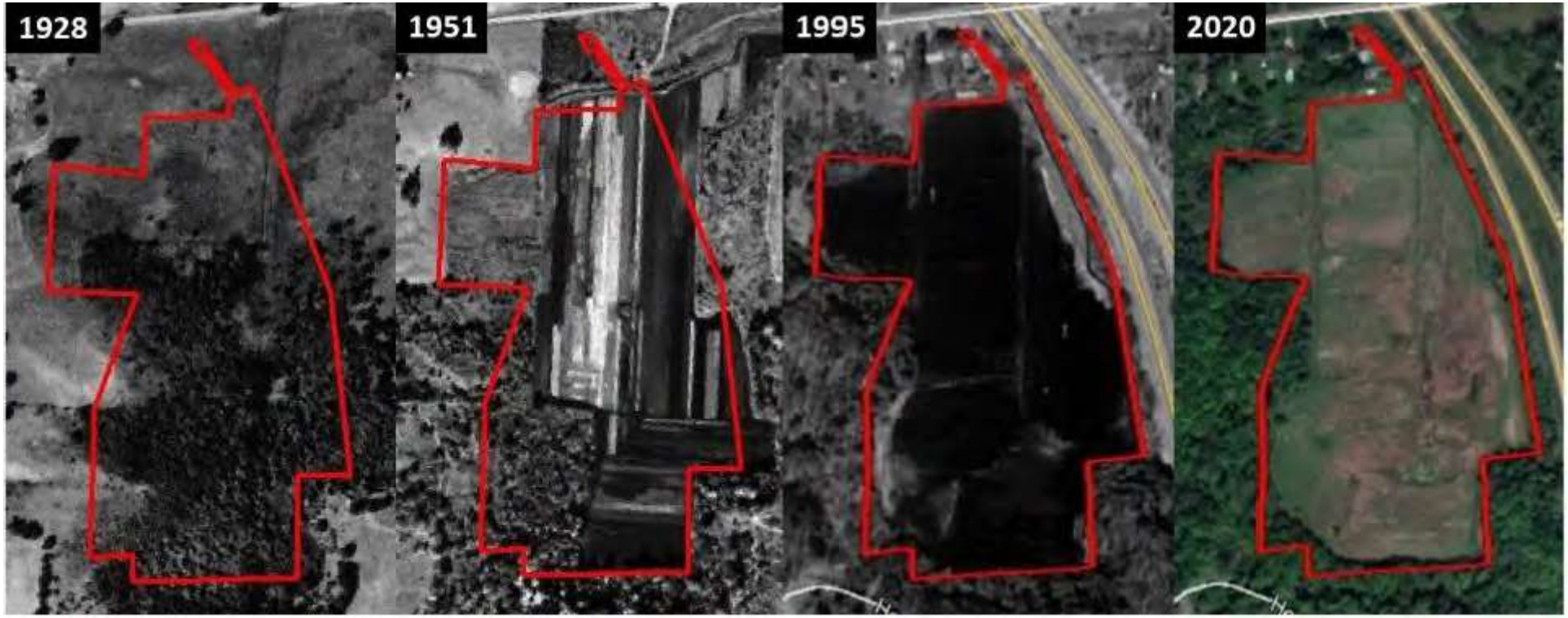

Figure 3 Historical Aerial Photos from Blood Road Muck.
Wetlands on the property were cleared and drained some time between 1928 and 1951, and was continuously in agriculture through the 1990's. From 2005 and 2018 portions of the muck field had been rotated in and out of fruit and vegetable crops.

5.3 Soil Descriptions

Based on the Soil Survey of Erie County, New York (USDA Official Soil Series Descriptions) the soil series mapped on-site include Canandaigua silt loam, Palms muck, and Varysburg gravelly loam. A soils map is provided in Figure 4. Soil conditions in the field appear to conform to the mapped soil series. Additionally, soil borings were taken throughout areas potentially suitable for restoration work. Descriptions of soil borings are provided in the work plans for the Site in Appendix B. Overall soils appear suitable for shallow grading and ditch plug construction.

Cc-Canandaigua silt loam. The Canandaigua series consists of deep, poorly drained and very poorly drained soils on lowland lake plains and in upland depressions. These soils formed in lake-laid deposits. Slopes range from 0 to 3 percent. Th thickness of the solum ranges from 20 to 40 inches, and depth to carbonate ranges from 18 to 60 inches. Depth to bedrock is more than 5 feet. There are usually no coarse fragments, but they range up to 3 percent in some pedons. The Ap or A1 horizon (0-9") is silt loam, very fine sandy loam, or mucky silt loam. The B horizon (9-37") is very fine sandy loam to silty clay loam with random subhorizons of lighter or heavier textures, but the average clay content in the 10- to 40-inch control section is between 18 and 35 percent. The C horizon (37-60") is silt loam or very fine sandy loam. Thin layers or bands that have a wide range in texture are in the C horizon of some pedons.

Pa-Palms muck. The Palms series consists of deep, very poorly drained soils in depressional areas of lake plains and till plains throughout the county. These soils formed in decomposed organic deposits underlain by loamy mineral soil material. The organic mantle is 16 to 50 inches thick. Slopes range from 0 to 3 percent but is dominantly less than 1 percent. The Oa horizon (0-38") contains herbaceous and woody organic material with less than 10 percent mineral content. The IICg horizon (38-50") is fine sandy loam to silty clay loam. Coarse fragments are 0 to 15 percent.

VbD-Varysburg gravelly loam, 15 to 25 percent slopes. The Varysburg series consist of deep, well drained and moderately well drained soils on dissected lake plains and valley sides where gravelly deposits are 20 to 40 inches thick over fine textured sediments. These soils formed in gravelly glacial outwash deposits and the underlying clayey lake sediments. Slope ranges from 0 to 40 percent but is dominantly 3 to 8 percent. The thickness of the solum ranges from 35 to 50 inches. Depth to carbonates is 35 to 60 inches. Depth to clayey material ranges from 20 to 35 inches. Coarse fragments range from 15 to 35 percent in the A horizon, increasing with depth to as much as 55 percent in the B horizon. Fragments are mostly gravel, but in places there are channery fragments. There are very few or no coarse fragments in the IIB and IIC horizons. Bedrock is at a depth of more than 5 feet. The Ap horizon (0-9") is gravelly loam to gravelly sandy loam, but gravelly silt loam is most common. The B1 horizon (9-15") ranges from sandy loam through silt loam. Consistence is friable or very friable. The B&A horizon (15-21") is silt loam, sandy loam, or loam with gravelly or very gravelly analogs of those textures. Consistence is friable or firm. The B2t horizon (21-28") is very gravelly silt loam to very gravelly sandy loam. The IIBt horizon (28-41") is silty clay loam or silty clay. Consistence is firm or very firm. The IIC horizon (41-60") is silt clay or clay with varves of silt or silt loam common in many pedons.

Figure 4 Soils Map.
Restoration activities will occur primarily in Palms Muck (Pa).

5.4 Animal and Plant Species Including Endangered Species

While no federally listed species were observed during site visits, forested portions of the site potentially contain roosting habitat for northern long-eared bat (*Myotis septentrionalis*) (Appendix E). DU will consult with the USFWS to ensure that this project will not negatively affect any listed species that may be present. DU will not cut any trees as part of this project as it might have an adverse impact on bat species. We anticipate that the restored wetlands and upland forest will improve foraging and roosting opportunities for bat species present at the site.

New York State species of greatest conservation need (SGCN) have been documented in the vicinity of the Site during past surveys including: northern bobwhite, brown thrasher, bobolink, eastern meadowlark, ruffed grouse, American kestrel, wood thrush, blue-winged warbler, Louisiana waterthrush, and scarlet tanager (McGowan and Corwin 2008). A full list of species observed at the property is provided in Table 2.

Table 2 Wildlife and Plant Species Identified

Species	Common Name	Conservation Status	Notes
	Birds		
Agelaius phoeniceus	red-winged blackbird		
Ardea herodias	great blue heron		
Buteo jamaicensis	red-tailed hawk		
Corvus brachyrhyncos	American crow		
Cyanocitta cristata	blue jay		
Poecile atricapillus	black-capped chickadee		
Spinus tristis	American goldfinch		
Turdus migratorius	American robin		
Zenaida macroura	mourning dove		
	Amphibians		
Lithobates clamitans	green frog		
Lithobates pipiens	northern leopard frog		
Pseudacris crucifer	spring peeper		
	Reptiles		
Thamnophis sirtalis	common garter snake		
	Mammals		
Odocoileus virginianus	white-tailed deer		
Procyon lotor	raccoon		
Sciurus carolinensis	eastern gray squirrel		
	Plants		
Acer negundo	boxelder		
Acer rubrum	red maple		
Acer saccharum	sugar maple		
Agrostis scabra	rough bentgrass		
Alliaria petiolata	garlic mustard		
Alnus incana	speckled alder		
Amaranthus powellii	Powell's amaranth		
Ambrosia psilostachya	perennial ragweed		
Arctium minus	lesser burdock		
Arisaema triphyllum	Jack in the pulpit		
Asclepias syriaca	common milkweed		
Athyrium angustum	northern lady fern		
Barbarea vulgaris	yellow rocket		
Berberis thunbergii	Japanese barberry		

Species	Common Name	Conservation Status	Notes
Betula alleghaniensis	yellow birch		
Bidens cernua	nodding burr-marigold		
Bidens frondosa	devil's beggartick		
Carex comosa	longhair sedge		
Carex gynandra	nodding sedge		
Carex scoparia	broom sedge		
Carex vulpinoidea	fox sedge		
Carpinus caroliniana	American hornbeam		
Carya cordiformis	bitternut hickory		
Carya ovata	shagbark hickory		
Caulophyllum thalictroides	blue cohosh		
Chelone glabra	white turtlehead		
Cirsium arvense	Canada thistle		
Cirsium vulgare	bull thistle		
Cornus amomum	silky dogwood		
Cyperus esculentus	yellow nutsedge		
Daucus carota	wild carrot		
Dioscorea villosa	wild yam		
Dipsacus fullonum	common teasel		
Elaeagnus umbellata	autumn olive		
Epilobium ciliatum	fringed willowherb		
Equisetum arvense	field horsetail		
Eragrostis hypnoides	teal lovegrass		
Eupatorium perfoliatum	rough boneset		
Eurybia divaricata	white wood aster		
Euthamia graminifolia	common goldentop		
Eutrochium maculatum	spotted Joe Pye weed		
Fragaria virginiana	Virginia strawberry		
Fraxinus pennsylvanica	green ash		
Gaultheria procumbens	eastern teaberry		
Glyceria striata	fowl mannagrass		
Hamamelis virginiana	American witchhazel		
Hyperium punctatum	spotted St. Johnswort		
Impatiens capensis	touch-me-not		
Iris pseudacorus	yellow iris		
Iris versicolor	blue flag		
Juglans nigra	black walnut		
Juncus articulatus	jointleaf rush		
Juncus effusus	soft rush		
Juncus tenuis	poverty rush		
Larix laricina	tamarack		

Species	Common Name	Conservation Status	Notes
Lamium purpureum	purple dead nettle		
Leersia oryzoides	rice cutgrass		
Leucanthemum vulgare	oxeye daisy		
Linaria vulgaris	butter-and-eggs		
Lindera benzoin	northern spicebush		
Liriodendron tulipifera	tuliptree		
Lobelia siphilitica	great blue lobelia		
Lolium perenne	perennial ryegrass		
Lonicera tatarica	Tartarian honeysuckle		
Lycopus americanus	American water horehound		
Lythrum salicaria	purple loosestrife		
Magnolia acuminata	cucumber-tree		
Oenothera parviflora	northern evening primrose		
Onoclea sensibilis	sensitive fern		
Osmunda cinnamomea	cinnamon fern		
Osmunda regalis	royal fern		
Oxalis montana	mountain woodsorrel		
Panicum capillare	witchgrass		
Parthenocissus quinquefolia	Virginia creeper		
Persicaria sagittata	arrowleaf tearthumb		
Phalaris arundinacea	reed canary grass	invasive	
Phleum pratense	common timothy		
Phragmites australis	common reed	invasive	
Pinus strobus	eastern white pine		
Pinus sylvestris	Scotch pine		
Plantago lanceolata	English plantain		
Polygonatum biflorum	smooth Solomon's seal		
Polygonum pensylvanicum	Pennsylvania smartweed		
Populus deltoides	eastern cottonwood		
Populus tremuloides	quaking aspen		
Prunus serotina	black cherry		
Prunus virginiana	chokecherry		
Quercus rubra	northern red oak		
Rhus hirta	staghorn sumac		
Rhus vernix	poison sumac		
Rosa multiflora	multiflora rose		
Rudbeckia hirta	black-eyed Susan		
Rubus flagellaris	northern dewberry		
Rumex crispus	curly dock		
Salix nigra	black willow		
Scirpus atrovirens	green bulrush		

Species	Common Name	Conservation Status	Notes
Scirpus cyperinus	woolgrass		
Solidago canadensis	Canada goldenrod		
Solidago patula	roundleaf goldenrod		
Solidago rugosa	wrinkleleaf goldenrod		
Symphyotrichum ericoides	white heath American-aster		
Symphyotrichum novae-angliae	New England aster		
Symphyotrichum prenanthoides	crookedstem aster		
Symphyotrichum puniceum	purplestem aster		
Symphyotrichum tradescantii	shore aster		
Taraxacum officinale	common dandelion		
Tilia americana	American basswood		
Tsuga canadensis	eastern hemlock		
Typha angustifolia	narrow-leaved cattail	invasive	
Typha latifolia	broad-leaved cattail		
Ulmus americana	American elm		
Verbascum thapsus	great mullein		
Verbena hastata	blue vervain		
Viburnum dentatum	southern arrowwood		
Viburnum lentago	nannyberry		
Vitis riparia	riverbank grape		

6. Mitigation Work Plan

6.1 Geographic Boundaries

The geographic boundaries of the Site correspond to the 28.59-acre area to be placed under a conservation easement (red-line) as depicted in Figure 2, and in Appendix D. The Site is bounded on the east by State Route 400. The remainder of the site borders private land. A small area, excluded from the credit production, will serve as off-road parking (Appendix B).

6.2 Sources of Water, Connections to Existing Waters and Upland Runoff

The muck field at the Site is a significant depressional feature in the landscape that would have historically collected and held runoff. An unnamed tributary of Buffalo Creek enters the Site through the forest in the southwest corner and flows through the property. Forested areas to the west and south also drain towards the Site. Previous ditching, including dredging of the tributary and installation of a perimeter ditch, diverts the majority of these surface water inputs away from the Site. Currently, groundwater is the primary source of hydrology to the muck field, which has

also been limited by tile drainage and interior ditches. Existing wetland features have been identified through an on-site delineation, this report can be found in Appendix A. Three groundwater monitoring wells were installed at the Site in October of 2020. The well locations are shown in Appendix B and data from the wells are shown in Figure 5. Between October 2020 and May 2021, the groundwater at well MW-1 regularly fluctuated between 0.2 and 1.4 feet of the ground surface in response to runoff events, except during a period between January and February of 2021 when it remained relatively static at a lower elevation. During the same period, the groundwater at MW-2 followed a similar pattern, except slightly deeper and with smaller fluctuations between 0.8 and 1.8 feet of the surface. Dry conditions in 2020, combined with existing drain tile likely prevented groundwater levels from being higher. Well MW-3 is located inside the western edge of existing Wetland B where the groundwater remained higher throughout this monitoring period, between the ground surface and 0.5 feet below the surface. The site characteristics and data collected support the plan to utilize a combination of drain tile disruption, grading, culvert removal, and ditch plugs to restore and maintain wetland hydrology for longer periods during the growing season. It is anticipated that the hydroperiod in the wetland rehabilitation areas will increase above the baseline levels during the growing season.

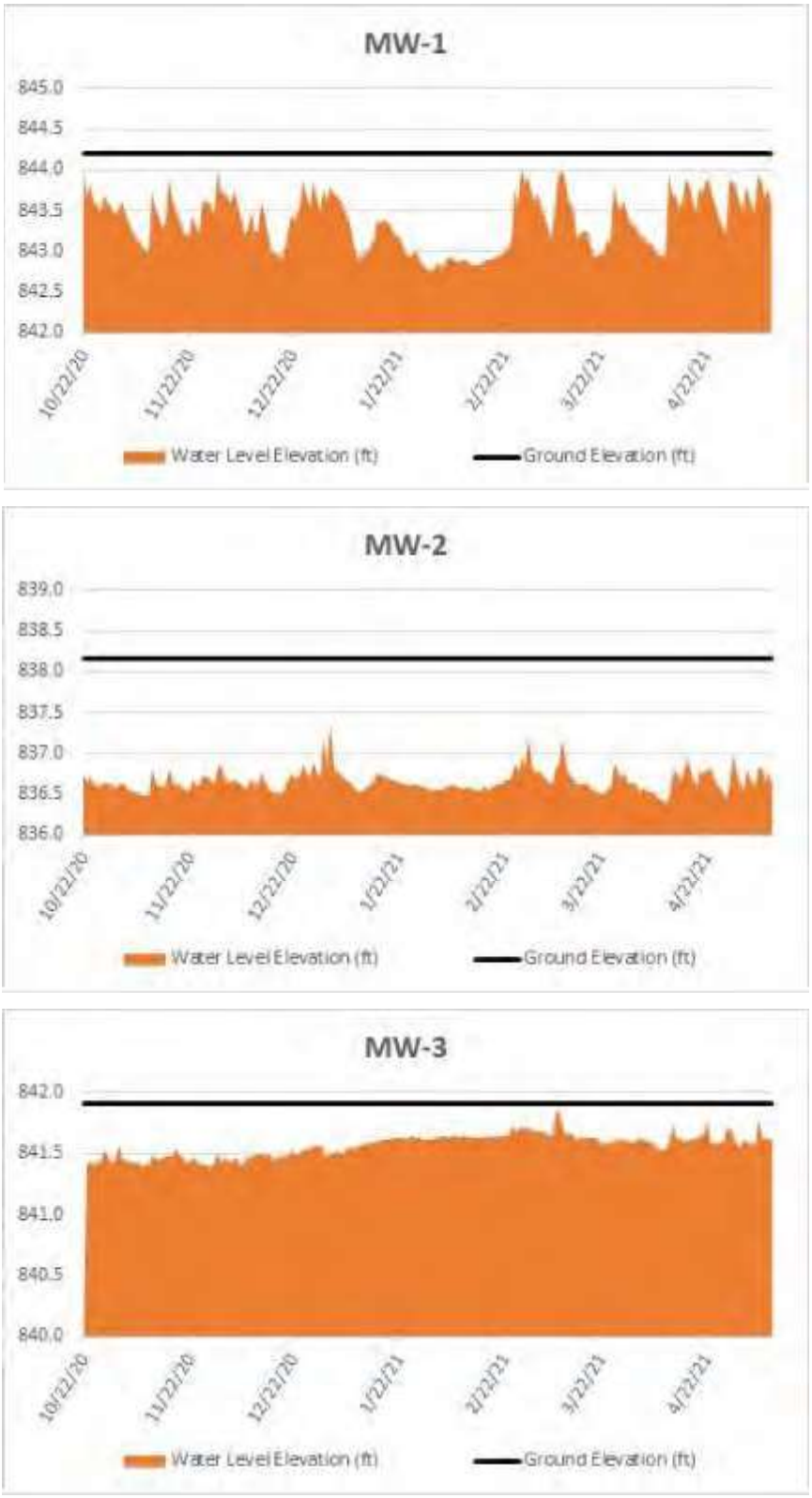

Figure 5 Ground Water Data.
Groundwater data is shown from October 2020 to May 2021. The water-table was often observed within 6”-18” of the surface from fall through spring. Dry conditions in 2020, combined with existing drain tile likely prevented groundwater levels from being higher.

6.3 Invasive Species

Upon acquisition, the Site had invasive plant species present that are typical in much of the Buffalo-Eighteenmile Creek Service Area, summarized below. All stands of invasive species on the Site have been recorded with GPS and are shown in Figure 6. Active management will be required to achieve performance standards for invasive plant and native plant diversity goals. Common reed (*Phragmites australis*) exists in all three of the emergent wetlands at the site, with the largest infestation in Wetland B. Broadleaf cattail (*Typha latifolia*) was identified in Wetland B, primarily in the lower areas adjacent to the interior ditches. While not as invasive as narrowleaf cattail (*Typha angustifolia*) or hybrid cattail (*Typha* x *glauca*), performance standards require that broadleaf cattail cover be minimized in order to maintain a diverse plant community. Two stands of purple loosestrife (*Lythrum salicaria*) were also documented along the east side of Wetland B. In conjunction with construction activities, invasive species will be mowed ahead of a broad-cast herbicide application. A broad-spectrum, aquatic-safe herbicide will be applied by a certified pesticide applicator in accordance with all state and federal regulations. More detail on post-construction invasive plant control is provided in Section 6.6.

DU will continue to monitor and adaptively manage all invasive species on the Site through hand pulling, mechanical removal, and through application of herbicide in accordance with all state and federal regulations. DU staff regularly visits mitigation projects once constructed to identify any ongoing management concerns. As the site is developed spot herbicide applications may be necessary. Other appropriate methods for control will be determined at the time the species are encountered. Long-term tasks will include routine inspections in early summer (late June through mid-July) to determine invasive species presence or absence, and abundance. Species found will be rapidly controlled through hand digging or the application of herbicides before seeds reach maturity. The performance standards to be met for invasive species are listed in Section 8.

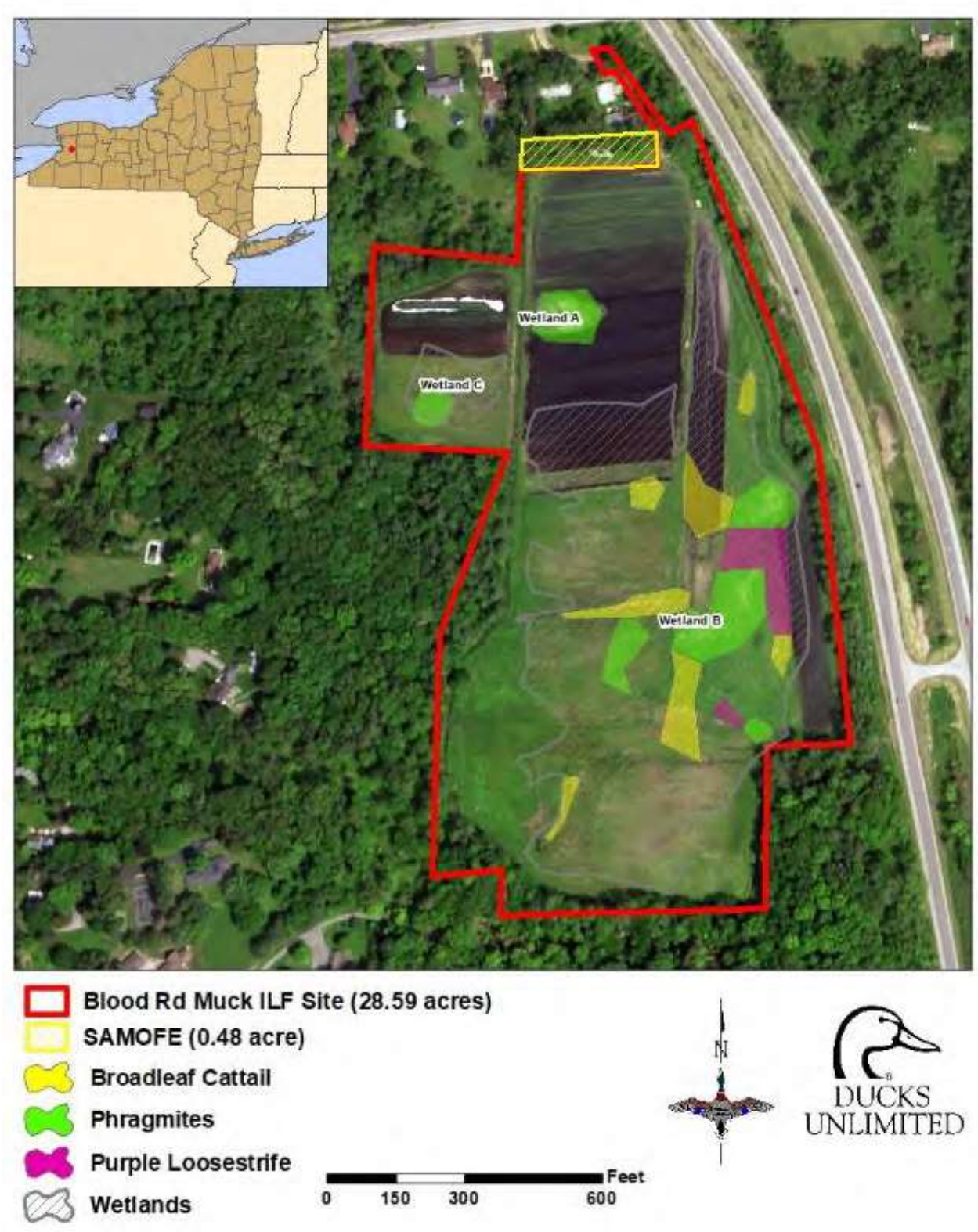

Figure 6 Invasive Species Map.
Invasive plant species will be targeted in construction and through adaptive management activities.

Invasive Plant Photos

Wetland B contains several stands of Phragmites australis, purple loosestrife, and broad-leaf cattail, this area will be mowed and sprayed during construction activities and seeded to a native plant mix. Photos taken June 9, 2020.

6.4 Construction Methods, Timing and Sequencing

Construction of the project will occur as soon as practicable after approval of this mitigation plan. Final earthwork adjustments and site planting will occur no later than June 30 of the year following construction, or by an approved extension date. The hydrological restoration plan provided in Appendix B includes drain tile disruption, culvert removal, grading, and ditch plugs. The existing muck field is largely a depressional feature in the landscape. The removal of drain tile around the perimeter of the field and one culvert at the north end of the field will prevent surface and ground water from leaving the Site. Scrapes and ditch plugs placed around the perimeter of the field will allow for high flows in the perimeter ditch to spill over into the Site. Placement of the scrapes will also maximize wetland reestablishment from the borrow area.

Prior to any grading or placement of fill, the topsoil (upper vegetated layer of muck) will be stripped and stockpiled from the work area. Drain tile disruption, culvert removal, scrapes, and ditch plugs will be completed on the site using a bulldozer and tracked excavator. Once the cut and fill work is completed, the stockpiled topsoil will be spread across all disturbed areas prior to being seeded. It is anticipated that this work will increase hydrology across the majority of the site.

Soils investigations during the wetland delineation documented that much of the Site has hydric (histosol) soils. Additionally, four of the five upland data points had soil saturation within 14” to 17” of the surface. It is anticipated that much of the Site will revert to wetlands with cessation of regular agricultural activities (e.g., ditch maintenance, mowing, disking, vegetation disturbance, crop introduction, periodic herbicide broad-cast applications) and the earthwork outlined in the construction plans (Appendix B). Planned wetland areas shown in Appendix B that are undisturbed by construction activities will be roughly disked to reintroduce microtopography, and to prepare areas of likely reversion for seeding of wetland plant species. Soils will be left loose to facilitate wetland plant establishment.

Seeding will begin as soon as the earthwork is completed. All reestablished and rehabilitated wetland areas will receive the wetland seed mix. Any disturbed upland areas will be stabilized

with the standard upland seed mix. The PFO and upland buffer areas specified in the planting plan (Appendix B) will be planted to the species mixes specified in Table 3. Herbaceous wetland species will be seeded immediately following construction, however woody plantings may be delayed as necessary in order to establish plants during an optimum time of year, which is typically in the fall or early spring. Woody planting will occur no later than June 30 of the year following construction.

6.5 Grading Plan, Including Elevations and Slopes of Substrate

The grading operations with finished elevations are shown in the plan and sections pages of Appendix B. These include tile drain exploration and removal, culvert removal, scrapes, and ditch plug construction in order to collect and retain groundwater and surface runoff. Slopes shall not exceed 6:1 on any of the cuts or fills. Final grading shall leave the topsoil in a loose condition conducive to broadcast seeding. The erosion and sediment control plan in Appendix B outlines the stormwater best management practices that will be used.

6.6 Methods for Establishing Desired Plant Community

Establishing the desired plant community will be achieved by active means. During the wetland delineation, hydrophytic vegetation was observed in the muck field, thus providing evidence of a hydrophytic seed bank that may reestablish following hydrological restoration. All reestablished and rehabilitated wetland areas will be broadcast with a wetland seed mix containing species with variable shade tolerance (Table 3). Species selection was formulated following a review of "Ecological Communities of New York State" (Edinger et al., 2014). The planting plan in Appendix B reflects a goal to reestablish two wetland cover types (i.e., PEM, PFO). Planned upland areas will be seeded to a grass and legume mix in order to prevent erosion, then planted with upland tree species.

Following initial construction, planting, and seeding activities, additional follow up spraying efforts will target areas dominated by invasive species. All herbicide applications will be conducted by a licensed pesticide applicator in accordance with state and federal guidelines. As the site develops, regular site visits during the growing season will be necessary to assure the re-establishment, rehabilitation, and enhancement zones remain free of all undesirable, invasive

plant species. DU will continue to monitor and adaptively manage all invasive species on the property through hand pulling, mechanical removal, and through herbicide application in order to facilitate the shift back to a native plant community. Annual spot herbicide applications may be necessary, based on past experience, it is expected that it will take 4-7 growing seasons to fully control Phragmites. Monitoring tasks include routine inspections in early summer (late June through mid-July) to determine invasive species presence, and abundance. Any invasive species found will be rapidly controlled before seeds reach maturity.

Table 3 Planting List

Target Area	Common Name	Scientific Name	Wetland Indicator Status	Propagule Type	Quantity/Acre
All Wetland Areas	fox sedge	*Carex vulpinoidea*	OBL	seed mix	*20 lbs seed mixture/acre in PEM areas*
	virginia wild rye	*Elymus virginicus*	FACW		
	shallow sedge	*Carex lurida*	OBL		
	mannagrass	*Glyceria canadensis*	OBL		
	bluejoint grass	*Calamagrostis canadensis*	OBL		
	broom sedge	*Carex scoparia*	FACW		
	hop sedge	*Carex lupulina*	OBL		
	soft rush	*Juncus effusus*	OBL		
	spotted Joe pye weed	*Eutrochium maculatum*	OBL		
	blue vervain	*Verbena hastata*	FACW		
	American bur-reed	*Sparganium americanum*	OBL		
	nodding beggartick	*Bidens cernua*	OBL		
	woolgrass	*Scirpus cyperinus*	OBL		
	swamp milkweed	*Asclepias incarnata*	OBL		*15 lbs seed mixture/acre in PFO areas*
	boneset	*Eupatorium perfoliatum*	FACW		
	green bulrush	*Scirpus atrovirens*	OBL		
	New England aster	*Symphyotrichum novae-angliae*	FACW		
	New York ironweed	*Vernonia noveboracensis*	FACW		
	soft stem bulrush	*Schoenoplectus tabernaemontani*	OBL		
PFO	red maple	*Acer rubrum*	FAC	bare root/potted	*sum to ≥500 stems / acre*
	silver maple	*Acer saccharinum*	FACW		
	swamp white oak	*Quercus bicolor*	FACW		
	yellow birch	*Betula alleghaniensis*	FAC		
	American elm	*Ulmus americana*	FACW		
	American hornbeam	*Carpinus caroliniana*	FAC		
	common winterberry	*Ilex verticillata*	FACW		
	sweetgale	*Myrica gale*	OBL		
	silky dogwood	*Cornus amomum*	FACW		
	northern spicebush	*Lindera benzoin*	FACW		
	southern arrowwood	*Viburnum dentatum*	FAC		
Upland Buffer	red maple	*Acer rubrum*	FAC	bare root/potted	sum to ≥500 stems/ acre
	American sycamore	*Platanus occidentalis*	FACW		
	striped maple	*Acer pensylvanicum*	FACU		
	eastern white pine	*Pinus strobus*	FACU		
	bitternut hickory	*Carya cordiformis*	FAC		
	yellow poplar	*Liriodendron tulipifera*	FACU		
	American basswood	*Tilia americana*	FACU		
Standard Upland Seed Mix	creeping red fescue	*Festuca rubra*	FACU	seed mix	*45 lbs seed mixture/acre*
	perennial ryegrass	*Lolium perenne*	FACU		
	annual ryegrass	*Lolium multiflorum*	FACU		
	redtop	*Agrostis gigantea*	FACW		
	birdsfoot trefoil	*Lotus corniculatus*	FACU		

**Exact species composition subject to commercial availability.*

6.7 Soil Management and Erosion Control Measures

All slopes, soils, substrates, and constructed features within and adjacent to the work site will follow stabilization protocols described in the Blood Road Muck Erosion and Sediment Control Plan, that will be prepared and provided to the contractor prior to initiation of those activities. DU will obtain all necessary permits (e.g., SWPPP) prior to construction.

7. Maintenance Plan

DU will take appropriate measures after initial construction to ensure continued site maturation. DU will be responsible for monitoring and coordinating the execution of maintenance activities. Monitoring will occur regularly throughout the growing season from approximately May through September of each year. Regular inspections include but are not limited to inspection of site hydrology, plant community development including diversity, percent cover and presence of invasive species, functioning of ditch plugs. Maintenance activities may be triggered by:

- During yearly monitoring (Section 9), management concerns (e.g., deer herbivory, unauthorized all-terrain vehicle (ATV) use, dumping) and appropriate adaptive management strategies will be reviewed and implemented as necessary. These include but are not limited to: erection of fencing, placement of barriers to prohibit unauthorized ATV use, contacting local authorities. Plant community management may take on the form of mechanical removal, mowing, and herbicide application to control invasive plant species.
- Unforeseen environmental conditions may affect the success of the project, but their effects can generally be managed through early detection. Flooding, drought, invasive species, site degradation, erosion, and vandalism are examples of some adverse conditions that can be managed.
- Routine maintenance checks, for example, on plant health and vigor, unwanted plant species, trash, herbivores, and areas with chronic erosion.
- Deer herbivory will be monitored. Supplemental plantings, fencing, etc. may be required as adaptive management techniques.
- Supplemental plantings may be added, especially to overcome adverse weather conditions early within site establishment phases.
- Corrective measures may include adding or removing plants as conditions warrant,

modifying local topography to ensure wetland hydrology, and additional mulching and seeding as needed.

- Routine checks of ditch plugs to look for erosion and to make sure that the outlets are clear of debris. Any eroded areas will be repaired and reseeded.
- Routine checks of signs and associated maintenance will be performed.
- Estimated costs for annual monitoring and reporting are provided in Appendix F.

8. Performance Standards

Success within the planned wetland re-establishment and rehabilitation portions of the Site is based on meeting the performance standards criteria described below and the USACE criteria for the three parameters described in the 1987 Corps of Engineers Wetlands Delineation Manual. These parameters require sufficient:

1. *wetland hydrology* to support adequate
2. *hydrophytic vegetation*, ultimately forming
3. *hydric soils*, all of which describe a functioning wetland.

The performance standards criteria described below will be monitored over a ten-year term that begins following the submittal of a post-construction as-built; the monitoring term includes three interim goals, and the final success criteria. When met, each interim goal would release 15% of the total remaining credits (i.e., credits remaining following mitigation plan and as-built approval). The final 25% of remaining credits would be released after the final vegetative goals have been met, a USACE approved long-term management plan and conservation easement have been executed and funded, and all other obligations and performance standards set forth in the instrument amendment and permit have been met. If areas of the Site are not meeting full performance criteria at the end of the 10-year monitoring period, the project sponsor may request that the areas be evaluated for partial credit release at a lower credit ratio, a modification to the instrument amendment may be requested, and/or additional corrective action/monitoring may be required. It is important to note that the first two options will only be considered in the event that all efforts to meet standards and obligations have been exhausted (including corrective action).

8.1 First Interim Goal Releases 15% of Credits When:

- The areas meeting wetland criteria will have 50% relative coverage by native perennial hydrophytes.
- The areas meeting wetland criteria are demonstrating progress in vegetative development towards meeting the final VIBI-FQ performance standard and have a minimum VIBI-FQ of 20.
- The upland buffer rehabilitation and those areas meeting PFO criteria will have at least 150 shrubs/trees per acre, and those stems will display normal and healthy growth, free of disease and pests. Upland buffer and PFO zones will have at least half of the stems growing as tree species.
- Wetland acreage will have less than 10% relative cover of all non-Typha invasive plant species such as, but not limited to: purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*), Japanese Knotweed (*Polygonum cuspidatum*), reed canary grass (*Phalaris arundinacea*).
- Due to the difficulty of distinguishing the three species of cattails (*Typha latifolia*, *Typha angustifolia*, and *Typha* x *glauca*), as well as the likelihood that at least one of these will be present in many types of New York wetlands, the total relative cover of all invasive species, including *Typha* spp., will be less than 15%.
- Upland buffer rehabilitation areas will have no more than 25% relative cover composed of invasive species such as: buckthorn (*Rhamnus cathartica*), honeysuckle (*Lonicera* spp.), reed canary grass (*Phalaris arundinacea*).
- Upland buffer rehabilitation areas will have at least 60% relative cover of native perennials.
- Upland buffer rehabilitation areas are demonstrating progress in vegetative development towards meeting the final VIBI-FQ performance standard and have a minimum VIBI-FQ of 20.

8.2 Second Interim Goal Releases 15% of Credits When:

- The areas meeting wetland criteria will have 60% relative coverage by native perennial hydrophytes.
- The areas meeting wetland criteria are demonstrating progress in vegetative development towards meeting the final VIBI-FQ performance standard and have a minimum VIBI-FQ of 32.
- The upland buffer rehabilitation and those areas meeting PFO criteria will have at least 250 shrubs/trees per acre, and those stems will display normal and healthy growth, free of disease and pests. Upland buffer and PFO zones will have at least half of the stems growing as tree species.
- Wetland acreage will have less than 8.5% relative cover of all non-*Typha* invasive plant species such as, but not limited to: purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*), Japanese Knotweed (*Polygonum cuspidatum*), reed canary grass (*Phalaris arundinacea*).
- Due to the difficulty of distinguishing the three species of cattails (*Typha latifolia*, *Typha angustifolia*, and *Typha* x *glauca*), as well as the likelihood that at least one of these will be present in many types of New York wetlands, the total relative cover of all invasive species, including *Typha* spp., will be less than 13.75%.

- Upland buffer rehabilitation areas will have no more than 20% relative cover composed of invasive species such as: buckthorn (*Rhamnus cathartica*), honeysuckle (*Lonicera* spp.), reed canary grass (*Phalaris arundinacea*).
- Upland buffer rehabilitation areas will have at least 70% relative cover of native perennials.
- Upland buffer rehabilitation areas are demonstrating progress in vegetative development towards meeting the final VIBI-FQ performance standard and have a minimum VIBI-FQ of 32.

8.3 Third Interim Goal Releases 15% of Credits When:

- The areas meeting wetland criteria will have 75% relative coverage by native perennial hydrophytes.
- The areas meeting wetland criteria are demonstrating progress in vegetative development towards meeting the final VIBI-FQ performance standard and have a minimum VIBI-FQ of 36.
- The upland buffer rehabilitation and those areas meeting PFO criteria will have at least 350 shrubs/trees per acre, and those stems will display normal and healthy growth, free of disease and pests. Upland buffer and PFO zones will have at least half of the stems growing as tree species.
- Wetland acreage will have less than 6.5 % relative cover of all non-*Typha* invasive plant species such as, but not limited to: purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*), Japanese Knotweed (*Polygonum cuspidatum*), reed canary grass (*Phalaris arundinacea*).
- Due to the difficulty of distinguishing the three species of cattails (*Typha latifolia, Typha angustifolia*, and *Typha* x *glauca*), as well as the likelihood that at least one of these will be present in many types of New York wetlands, the total relative cover of all invasive species, including *Typha* spp., will be less than 12.5%.
- Upland buffer rehabilitation areas will have no more than 15% relative cover composed of invasive species such as: buckthorn (*Rhamnus cathartica*), honeysuckle (*Lonicera* spp.), reed canary grass (*Phalaris arundinacea*).
- Upland buffer rehabilitation areas will have at least 75% relative cover of native perennials.
- Upland buffer rehabilitation areas are demonstrating progress in vegetative development towards meeting the final VIBI-FQ performance standard and have a minimum VIBI-FQ of 36.

8.4 Final Goal Releases 25% at The End of the 10-Year Monitoring Period

- The wetlands shall have 90% relative coverage by native perennial hydrophytes.
- The areas meeting wetland criteria have met the final VIBI-FQ performance standard of 40.
- The upland buffer rehabilitation and those areas meeting PFO criteria will have at least 425 shrubs/trees per acre $\geq$ 3" diameter at breast height, and those stems will display normal and healthy growth, free of disease and pests. Upland buffer and PFO zones will have at least half of the stems growing as tree species.

- Wetland acreage will have less than 5 % relative cover of all non-*Typha* invasive plant species such as, but not limited to: purple loosestrife (*Lythrum salic*aria), common reed (Phrag*mites australis*), Japanese Knotweed (*Polygonum cuspidatum*), reed canary grass (*Phalaris arundinacea*).
- Due to the difficulty of distinguishing the three species of cattails (*Typha latifolia*, *Typha angustifolia*, and *Typha* x *glauca*), as well as the likelihood that at least one of these will be present in many types of New York wetlands, the total relative cover of all invasive species, including *Typha* spp., will be less than 10%.
- Upland buffer rehabilitation areas will have no more than 10% relative cover composed of invasive species such as: buckthorn (*Rhamnus cathartica*), honeysuckle (*Lonicera* spp.), reed canary grass (*Phalaris arundinacea*).
- Upland buffer rehabilitation areas will have at least 80% relative cover of native perennials.
- Upland buffer rehabilitation areas have met the final VIBI-FQ performance standard of 40.
- Wetland rehabilitation areas will demonstrate an increase above pre-construction levels in the frequency of saturation or inundation within 12-inches of the surface during the growing-season.
- A Corps approved long-term management plan and conservation easement have been executed and funded.
- All other obligations and performance standards set forth in the instrument amendment and permit have been met.

To reduce or waive remaining monitoring requirements before the ten-year monitoring period ends, at least two consecutive monitoring reports must satisfactorily meet final success criteria.

8.5 Wetland Hydrology and Hydric Soils

To demonstrate that the requisite wetland hydrology has been established/restored, reestablished wetlands must be inundated (flooded or ponded) or the water table is ≤12 inches below the soil surface for ≥14 consecutive days during the growing season at a minimum frequency of 5 years in 10 (≥50% probability). Any combination of inundation or shallow water table is acceptable in meeting the 14-day minimum requirement. Short-term monitoring data may be used to address the frequency requirement if the normality of rainfall occurring prior to and during the monitoring period each year is considered. The methodology prescribed in the U.S. Army Corps of Engineers "Technical Standard for Water-Table Monitoring of Potential Wetland Sites" (ERDC TN-WRAP-05-2, June 2005) shall be utilized.

Hydrology will be determined through an analysis of water-well data, visual inspections, and review of permanently located water-level gauges. The growing season can be approximated as the period of time between the average date of the last killing frost in the spring to the average date of the first killing frost in the fall, this is usually the beginning of May through September. Growing season beginning and ending dates shall be based on the median dates (i.e., 5 years in 10, or 50 percent probability) of 28 °F air temperatures in spring and fall, according to data from the Buffalo, NY weather station.

The wetland re-establishment and rehabilitation areas are being monitored with three continuously logging water level monitoring wells which commenced in October 2020 (Figure 5). The temporal record of pre-construction conditions is expected to provide 3 full years of baseline data from which to compare pre-vs. post construction hydrology. This record will be augmented with manual water-level measurements in the rehabilitation area to be performed at an additional staff gauge/well location to be installed post-construction. Monitoring locations are shown in Appendix B. Moreover, photo-points included in these areas will provide the ability to qualitatively assess the retention of hydrology compared to baseline conditions to augment quantitative methods.

The proposed wetland rehabilitation areas are largely depressional features in the landscape which historically collected and retained surface and groundwater. Previous ditching has diverted the majority of surface water inputs away from the Site, while repeated tillage of the site has eliminated microtopographic variation and increased surface drainage towards the ditches. Groundwater has also been limited by tile drainage and interior ditches. In these rehabilitation areas we propose to achieve and document an increase in hydrology over baseline conditions during the growing season. The planned scrapes and ditch plugs placed around the perimeter of the field will allow for high flows in the perimeter ditch to spill over into the Site, while the removal of drain tile and one culvert will prevent surface and ground water from leaving the Site. Grading and reintroduction of microtopography through heavy disking should also increase hydrology within the upper 12” of the soil. Increased hydrology should be visibly demonstrable from photo and well data analysis.

9. Monitoring Requirements

9.1 Monitoring Report Requirements

Annual site monitoring will begin after construction is completed and will continue for ten (10) years. Monitoring reports will be submitted as outlined in Table 4. Monitoring locations are shown in Appendix B. Monitoring will consist of the following:

- Post construction, monitoring report complete with photographs, baseline ecological descriptions, as-built surveys that describe the actual constructed features with 0.5' contours, wetland delineation maps with habitat type breakdowns, delineation data forms, estimates of relative cover of invasive plant species, and a description of any deviation from the Instrument Amendment.
- Aquatic resource delineation broken out by aquatic resource type (e.g. PEM, PSS, PFO, deepwater habitat, vegetated shallows, riverine resources).
- Descriptions of the monitoring inspection protocols used.
- Water depths will be reported from throughout the site from permanent locations, as well as hydrology information derived from Wetland Determination Data Forms completed throughout the site. Locations of each water depth monitoring location and data point will be indicated on the survey map(s). Three permanent monitoring wells are currently installed in the site.
- Concisely described remedial actions completed during the monitoring year to meet the three success standards – actions such as, replanting, controlling invasive plant species (with biological, herbicidal, or mechanical methods), re-grading the site, adjusting site hydrology, etc.
- Description of other remedial actions taken.
- Report on the status of all erosion control measures on the mitigation site. Identify whether they are functioning. Descriptions of the necessity of any planned additional temporary measures.
- Review of all information collected to meet all performance goals (8.1, 8.2, 8.3, 8.4, 8.5).
- Photographs taken from permanent photo points shown on a site plan.
- List of wildlife observed and other interesting biological occurrences.

- A qualitative description of the general arboreal plant health, vigor and mortality rates, including a prognosis for their future survival will be included along with photos illustrating tree growth.
- All areas >0.1 acre that are dominated by invasives will be mapped and reported.
- VIBI-FQ scores will be recorded for reestablishment and rehabilitation areas generating credits in years of credit release requests (Years 1, 3, 5, 7, and 10, or by approved variation). VIBI-FQ data sheets will be provided with monitoring report.
- Preservation areas will be visually monitored for changes in conditions, particularly the establishment or increase in invasive species presence. Any notable changes will be identified in the report.

9.2 Reporting Schedule

Monitoring reports, including an As-Built Report will be submitted no later than February 28 and will describe conditions in the prior growing season. The As-Built will be submitted following the completion of construction and planting. The As-Built survey will include a detailed contour map and any deviations from the construction plans. Each report cover sheet shall indicate the year, report number, and Department of Army permit numbers. All reports described in this section will be submitted to the New York IRT and to the District Engineer at the Department of the Army, at the Buffalo District Corps of Engineers 1776 Niagara Street, Buffalo, NY 14207-3199. All monitoring, reporting, requests and adaptive management implementation will be the responsibility of DU. Measures requiring additional soil manipulation or changes in hydrology will be undertaken only after written approval from the Buffalo District Engineer has been obtained.

Table 4 Reporting Schedule

Activity	Description	Year
As-built Report	To be submitted in February, the year following completion of construction and planting	0
1st Monitoring Report	First monitoring report / no credit release requested	1
2nd Monitoring Report	1st Interim Credit Release Request	3
3rd Monitoring Report	2nd Interim Credit Release Request	5
4th Monitoring Report	3rd Interim Credit Release Request	7
Final Monitoring Report	Final Credit Release Request	10

*Credit release are anticipated to coincide with a given year, but they may deviate based on performance. Reports will be submitted by no later than February of the calendar year following monitoring activities. Monitoring and adaptive management and or corrective actions may extend beyond 10 years if performance criteria have not been met by year 10.

10. Long-term Management Plan, Including Financial Arrangements

In order to provide for a more sustainable approach to long-term management, DUL will transfer ownership of the site to the Long-Term Steward following construction, with WAT being granted a Conservation Easement at the time of transfer. It is anticipated that the Western New York Land Conservancy (WNYLC) will be the Long-term Steward; in the event that WNYLC does not take on the role of Long-Term Steward, DU would be the default long-term manager until another Steward acceptable to USACE and the IRT is identified. Prior to execution of the Long-Term Management Plan (LTMP), it will be provided to the USACE and IRT for review. DU will provide written notice to the USACE at least 60-days prior to transfer of ownership of the Site to the Long-term Steward. A USACE-approved Conservation Easement and LTMP, and Site Access and Management Easement (SAME), to be held by DU, will be recorded to the deed at the time of transfer. The SAME will outline responsibilities of the Long-Term Steward and DU during the active mitigation monitoring period, with DU remaining responsible for adaptive management and monitoring of the Site prior to entrance into the Long-term Management Phase. During the monitoring period, as outlined in the SAME, the Long-term Steward will assist with DU's efforts to maintain the conservation values of the site and meet the objectives of this Instrument Amendment. When the Site enters the long-term management phase, the conditions of the SAME will be satisfied, and a notice of termination of the SAME will be recorded to the Deed.

The responsibilities of the Long-Term Steward are outlined in Table 5 and will be further described in the LTMP. Those responsibilities will begin when the final performance standards outlined in Section 8 are signed off on by USACE. It is anticipated entrance into The Long-Term Management phase will occur 10 years following construction. At that time, The Long-term Steward shall implement the LTMP, managing and monitoring the Site to preserve its habitat and conservation values. At the start of the Long-Term Management phase DU will assist The Long-term Steward with updating the baseline site conditions described in the LTMP to reflect current conditions. During the long-term protection phase, the Site will be monitored at least annually by The Long-Term Land Steward, and identification of threats to the Sites' conservation values will trigger adaptive management actions to maintain the integrity of the site. The responsibilities of the Long-Term Steward include prevention of erosion, unauthorized use, dumping, as well as adaptive management of invasive plant species, and maintenance of signage designating the area as a protected area.

Funds for Long-Term Management will be provided by DU and will be maintained as a non-wasting endowment to cover costs of annual monitoring, management of invasive species as needed, regular maintenance of signs, prevention of dumping, unauthorized use, and any other requirements of the LTMP. Anticipated long-term management activities and their costs are identified in Table 5. At a conservative 4% annual growth rate, we estimate $4,100 will be available annually for maintenance and adaptive management based on a $102,500.00 endowment. Changes to the Long-Term Manager or the LTMP will require approval by USACE, DU, and WAT. Prior to closure of the Site, and entrance into long-term management, DU will continue to be responsible for adaptive management and site maintenance.

Table 5. Anticipated Long-term Management Needs

Anticipated Management Activity*	Monitoring Method	Monitoring Frequency	Monitoring Cost	Annual Monitoring Total	Stewardship Trigger	Action	Action Frequency	Action Cost	Annual Action Total
Invasive Species	*Visual inspection*	*1/year*	*$75*	*$75*	*Greater than 10% coverage of invasive presence; presence of new species*	*Herbicide spraying, hand pulling, mowing, other*	*Every other year*	*$3,500*	*$1,825*
Trash Removal/Prevention of Unauthorized Access	*Visual inspection*	*1/year*	*$75*	*$75*	*Trash present, damage to site from ATV traffic*	*Prevent access for dumping*	*1/year*	*$500*	*$575*
Maintaining Signage	*Visual inspection*	*1/year*	*$100*	*$100*	*Signs damaged, missing*	*Replace/repair signs*	*1/year*	*$100*	*$200*
Contingency (including inflation)		*1/year*	*NA*	*NA*	*Actions requiring adaptive management outstrip dedicated available funds for the year*				*$1,500*

Total anticipated annual management cost (based on total above)	$4,100
Expected interest growth	4%
Total non-wasting stewardship endowment costs (to be self-sustaining)	**$102,500.00**

11. Adaptive Management Plan, Including Addressing Invasive Species Control

A shared driveway off of West Blood Road provides access for wetland observation or maintenance. Unforeseen environmental conditions can also affect a wetland's viability. Flooding, prolonged drought, invasive species, site degradation (i.e., trash dumping, illegal logging, ATV travel), erosion and vandalism are examples of some adverse conditions that with early detection and proper management can be overcome. Every wetland site has its own unique characteristics that should be addressed with an adaptive management plan for long-term viability. Proper monitoring of the site will ensure adaptive management activities are implemented as new information is gathered. Completion of the regular maintenance activities outlined in Section 7 such as invasive species control and trash removal during routine monitoring trips will reduce the need for larger intervention. DU will regularly review the status of this site to confirm that all necessary activities have been implemented and that adequate hydrology and hydrophytic plant cover has become established to meet performance criteria. After construction, DU will conduct regular monitoring visits during each growing season to evaluate the progress of the site relative to the performance standards outlined in Section 8. Occasional visits may also occur outside of the growing season.

Monitoring visits may include delineating the wetland acreage on-site, observing water levels, evaluating the plant community through vegetation monitoring (i.e., VIBI-FQ, woody stem counts, invasive species cover), inspecting ditch plugs, evaluating herbivory, and looking for any damage to the site. Data collected during these visits will be summarized in the monitoring reports outlined in Section 9.1 and compared against the interim goals specified in Sections 8.1-8.5. If any repairs are needed or if the site fails to be meeting any of the interim goals, DU will utilize adaptive management to address the issue(s).

Reestablishment and rehabilitation efforts will focus on recreating and improving wetland function. Techniques will include but are not limited to, invasive plant species control, and planting native vegetation to improve the VIBI-FQ score. Invasive species control methods include, but are not limited to, spraying, hand pulling, and mechanical removal. When monitoring indicates that a performance standard is not being met, the causes for failure will be evaluated to determine if simply more time is needed or whether a remedial action may be required. Remedial action to help the site meet the performance standard shall be taken as soon

as practicable once an issue has been identified. Remedial actions may include, but are not limited to: seeding or planting, non-native plant control, and erosion control measures. DU staff will be regularly monitoring the site throughout the growing season and at least once per dormant season in order to minimize the possibility for ditch plug failure. Remedial actions requiring earth movement or changes in hydrology will not be implemented without written approval from the USACE.

If USACE in consultation with the IRT, determines that the site (or any portion thereof) is failing to make satisfactory progress towards meeting any performance goal within the monitoring period, DU must develop a remedial action plan to correct the deficiencies, or alternately a reduction of credits may be levied against underperforming areas. In the prior case, the remedial action plan shall be submitted to the IRT within three months of receipt of written notification of deficiencies from USACE. Remedial action plans may include suggested modifications to improve hydrology (e.g., regrading, addition of water control structures, ditch plugs, groundwater dams), and or additional plantings. The IRT shall in a timely manner provide written acceptance of the submitted plan or a modified plan acceptable to the IRT. The IRT-accepted remedial action plan (as submitted by DU or as modified by the IRT) will then be returned to DU and DU shall implement the measures specified in the remedial action plan within six months or along a timeline as otherwise provided in the remedial action plan. The default and closure provisions are further described in Appendix G. Once the monitoring period is over, the completed wetland will be managed by the long-term steward and managed only as needed and specified in the long-term stewardship plan.

12. Financial Assurances

Financial assurances for the construction and performance of the Site will be provided by DU in the form of a performance bond. Financial assurances will be established following mitigation plan approval and prior to release of credits from the Site. The financial assurances will extend sufficient financial resources to completely cover the full cost of construction and replanting of the project if necessary, to achieve success. In the project budget (Appendix F) we estimate construction, planting and associated staffing costs at $255,986. Financial assurances shall no longer be required once the compensatory mitigation project has been determined by the district engineer to be successful in accordance with its performance standards. The financial assurances

will not be called upon unless DU has exhausted the existing project budget, including all money set aside for contingency and wetland maintenance, excluding the funds to be utilized for the long-term stewardship endowment and conservation easement.

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Appendix A. Wetland Delineation Report

1.0 INTRODUCTION

Ducks Unlimited, Inc. (DU) investigated site conditions at the Blood Road Muck site in the spring of 2020. The Mitigation Site is located at Latitude: 42°47'23.58" N and Longitude: 78°36'00" W off West Blood Road in the Town of Elma, Erie County, New York. The site is bisected by an unnamed tributary to Buffalo Creek, which is within the Buffalo-Eighteen Mile Creek 8-digit HUC (HUC 04120103) lying within DU's Buffalo-Eighteen Mile Creek Service Area.

2.0 METHODS

Onsite data collection and wetland boundary delineation of the 28.59-acre property was performed by DU between June 8 and June 9, 2020. The boundaries were delineated following the protocols outlined in the United States Army Corps of Engineers' (USACE) 1987 "Wetland Delineation Manual" and data were collected on the "Regional Supplement to the Corps of Engineers Wetland Delineations Manual: Northcentral and Northeast Region (Version 2.0)" (Regional Supplement). A routine on-site determination was performed as specified in Section D of Chapter IV of the 1987 Delineation Manual. Prior to the delineation survey, the property was walked to identify general topography, drainage patterns, major plant communities, and potential areas of disturbance. Climatic/hydrologic conditions were typical for this time of year.

3.0 RESULTS

Normal circumstances were present at the time of data collection. The most prevalent type of wetland delineated at the Mitigation Site was palustrine emergent (PEM, 12.51 acres) wetlands.

Wetland Delineation Maps and Datasheets:

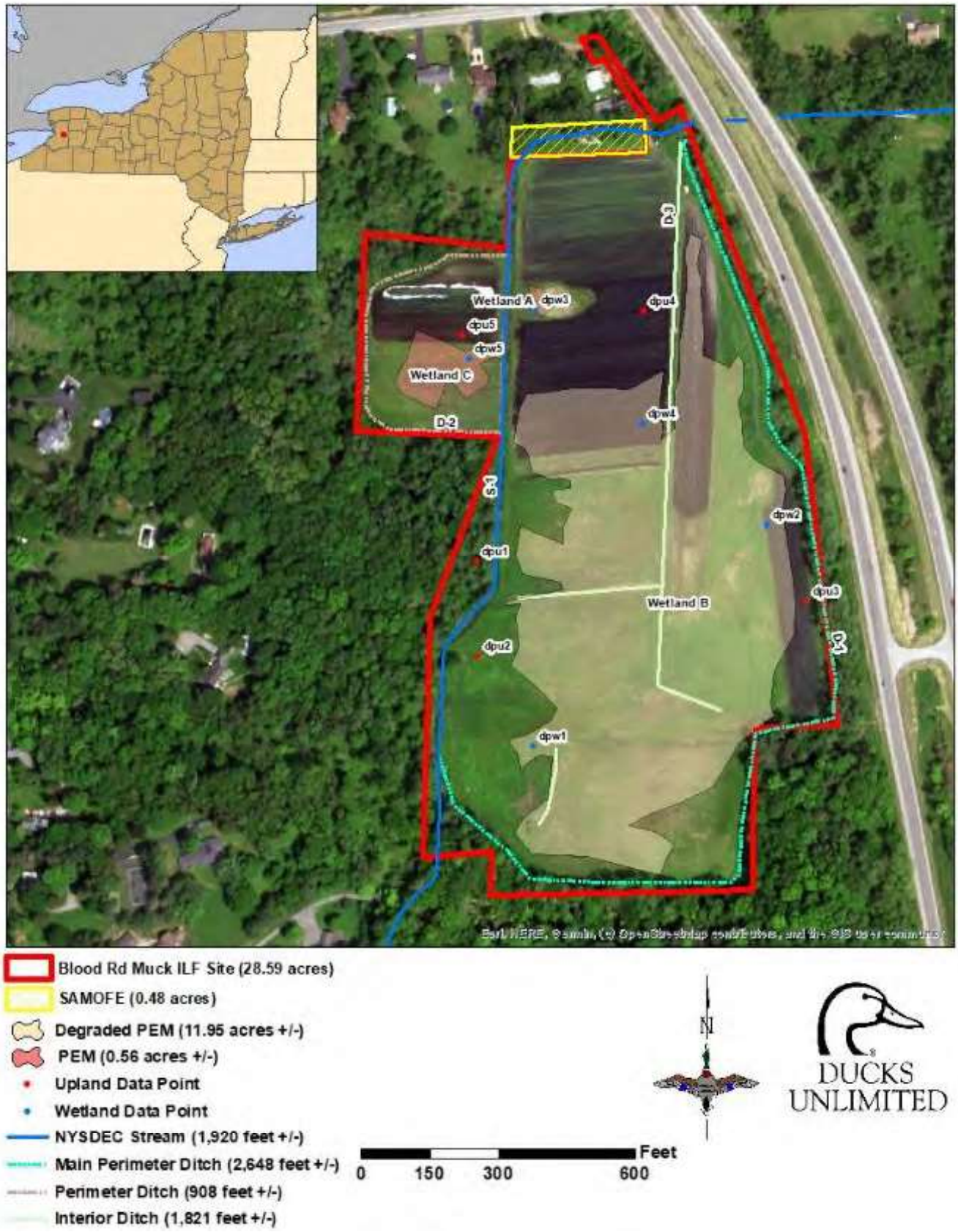


Table 1. Delineated Wetlands at the Mitigation Site

Wetland Name	Wetland Type	Wetland Acres	Datapoints	Latitude (N)	Longitude (W)
Wetland A	PEM	0.05	DPW3	42°47'28.169”	-78°36'2.215"
Wetland B	degraded PEM	11.95	DPW1	42°47'18.715"	-78°36'1.759"
			DPW2	42°47'23.711"	-78°35'55.086"
			DPW4	42°47'25.785"	-78°35'58.932"
Wetland C	PEM	0.51	DPW5	42°47'27.062"	-78°36'4.130"

Table 2: Streams and Ditches at the Mitigation Site

Label	Name	Linear Feet
S-1	NYSDEC Stream (Tributary to Buffalo Creek)	1,989
D-1	Main Perimeter Ditch	2,645
D-2	Perimeter Ditch	927
D-3	Interior Ditches	1,789

Wetland Datpoints

DPW1. This portion of emergent wetland B was dominated by soft rush (*Juncus effusus*), bristly sedge (*Carex comosa*), and sensitive fern (*Onoclea sensibilis)*. Primary hydrology indicators included high-water table and saturation. A histosol was the hydric soil indicator.

DPW2. This portion of emergent wetland B was dominated by bristly sedge (*Carex comosa*) and purplestem aster (*Symphyotrichum puniceum*). Primary hydrology indicators included high-water table and saturation. A histosol was the hydric soil indicator.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Blood Road Muck ILF Site City/County: Erie County Sampling Date: 6/8/20

Applicant/Owner: Ducks Unlimited State: NY Sampling Point: DPW1

Investigator(s): J. Fraser Section, Township, Range: Town of Elma

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 0.5

Subregion (LRR or MLRA): LRR L Lat: 42°47'18.715"N Long: 78°36'1.759"W Datum: WGS84

Soil Map Unit Name: Palms muck (Pa) NWI classification: PEM 1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: Wetland B

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 11
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DPW1

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Juncus effusus*	35	Yes	OBL
2. *Carex comosa*	25	Yes	OBL
3. *Onoclea sensibilis*	25	Yes	FACW
4. *Symphyotrichum puniceum*	18	No	OBL
5. *Glyceria striata*	5	No	OBL
6. *Agrostis scabra*	2	No	FAC
7. *Solidago rugosa*	2	No	FAC
8.			
9.			
10.			
11.			
12.			
	112 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	83	x 1 =	83
FACW species	25	x 2 =	50
FAC species	4	x 3 =	12
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	112 (A)		145 (B)

Prevalence Index = B/A = 1.29

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point DPW1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-26	10YR 2/1	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ? 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Blood Road Muck ILF Site City/County: Erie County Sampling Date: 6/8/20

Applicant/Owner: Ducks Unlimited State: NY Sampling Point: DPW2

Investigator(s): J. Fraser Section, Township, Range: Town of Elma

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 0.5

Subregion (LRR or MLRA): LRR L Lat: 42°47'23.711" N Long: 78°35'55.086" W Datum: WGS84

Soil Map Unit Name: Palms muck (Pa) NWI classification: PEM 1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: Wetland B

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 9
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DPW2

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Carex comosa*	30	Yes	OBL
2. *Symphyotrichum puniceum*	20	Yes	OBL
3. *Eupatorium perfoliatum*	12	No	FACW
4. *Lythrum salicaria*	10	No	OBL
5. *Juncus effusus*	5	No	OBL
6. *Verbena hastata*	4	No	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	81 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	16	x 2 =	32
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	81 (A)		97 (B)

Prevalence Index = B/A = 1.20

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point DPW2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-23	10YR 2/1	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ? 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Blood Road Muck ILF Site City/County: Erie County Sampling Date: 6/9/20

Applicant/Owner: Ducks Unlimited State: NY Sampling Point: DPW3

Investigator(s): J. Fraser Section, Township, Range: Town of Elma

Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope %: 2

Subregion (LRR or MLRA): LRR L Lat: 42°47'28.169" N Long: 78°36'2.215" W Datum: WGS84

Soil Map Unit Name: Palms muck (Pa) NWI classification: PEM 1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: Wetland A

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DPW3

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Onoclea sensibilis*	90	Yes	FACW
2. *Phragmites australis*	60	Yes	FACW
3. *Symphyotrichum puniceum*	20	No	OBL
4. *Equisetum arvense*	8	No	FAC
5. *Solidago canadensis*	8	No	FACU
6. *Eutrochium maculatum*	5	No	OBL
7.			
8.			
9.			
10.			
11.			
12.			
	191 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	150	x 2 =	300
FAC species	8	x 3 =	24
FACU species	8	x 4 =	32
UPL species	0	x 5 =	0
Column Totals:	191 (A)		381 (B)

Prevalence Index = B/A = 1.99

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point DPW3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/1	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ? 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Blood Road Muck ILF Site City/County: Erie County Sampling Date: 6/8/20

Applicant/Owner: Ducks Unlimited State: NY Sampling Point: DPW4

Investigator(s): J. Fraser Section, Township, Range: Town of Elma

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): none Slope %: 0.5

Subregion (LRR or MLRA): LRR L Lat: 42°47'25.785" N Long: 78°35'58.932" W Datum: WGS84

Soil Map Unit Name: Palms muck (Pa) NWI classification: PEM 1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: Wetland B

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ? Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 17
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DPW4

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Agrostis scabra*	40	Yes	FAC
2. *Symphyotrichum puniceum*	40	Yes	OBL
3. *Carex gynandra*	10	No	OBL
4. *Juncus effusus*	10	No	OBL
5. *Lolium perenne*	4	No	FACU
6. *Eupatorium perfoliatum*	3	No	FACW
7. *Lythrum salicaria*	3	No	OBL
8. *Acer negundo*	1	No	FAC
9.			
10.			
11.			
12.			
	111 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	63	x 1 =	63
FACW species	3	x 2 =	6
FAC species	41	x 3 =	123
FACU species	4	x 4 =	16
UPL species	0	x 5 =	0
Column Totals:	111 (A)		208 (B)

Prevalence Index = B/A = 1.87

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point DPW4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-24	10YR 2/1	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ? 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Blood Road Muck ILF Site City/County: Erie County Sampling Date: 6/9/20

Applicant/Owner: Ducks Unlimited State: NY Sampling Point: DPW5

Investigator(s): J. Fraser Section, Township, Range: Town of Elma

Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope %: 1.5

Subregion (LRR or MLRA): LRR L Lat: 42°47'27.062" N Long: 78°36'4.13" W Datum: WGS84

Soil Map Unit Name: Palms muck (Pa) NWI classification: PEM 1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: Wetland C

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ? Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 21
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: DPW5

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Symphyotrichum puniceum*	60	Yes	OBL
2. *Juncus effusus*	40	Yes	OBL
3. *Solidago canadensis*	15	No	FACU
4. *Equisetum arvense*	8	No	FAC
5. *Verbena hastata*	2	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	125	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species	2	x 2 =	4
FAC species	8	x 3 =	24
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	125 (A)		188 (B)

Prevalence Index = B/A = 1.50

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point DPW5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-24	10YR 2/1	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ? 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Blood Road Muck ILF Site City/County: Erie County Sampling Date: 6/8/20

Applicant/Owner: Ducks Unlimited State: NY Sampling Point: DPU1

Investigator(s): J. Fraser Section, Township, Range: Town of Elma

Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope %: 1

Subregion (LRR or MLRA): LRR L Lat: 42°47'22.634"N Long: 78°36'3.664"W Datum: WGS84

Soil Map Unit Name: Palms muck (Pa) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 14

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: DPU1

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	50	Yes	FAC
2. *Pinus strobus*	20	Yes	FACU
3. *Tsuga canadensis*	15	No	FACU
4. *Acer saccharum*	8	No	FACU
5. *Betula alleghaniensis*	5	No	FAC
6.			
7.			
	98	=Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	

Herb Stratum (Plot size: 5)			
1. *Gaultheria procumbens*	85	Yes	FACU
2. *Parthenocissus quinquefolia*	15	No	FACU
3. *Osmundastrum cinnamomeum*	8	No	FACW
4. *Prunus serotina*	5	No	FACU
5. *Acer rubrum*	2	No	FAC
6. *Carya ovata*	2	No	FACU
7. *Polygonatum biflorum*	1	No	FACU
8.			
9.			
10.			
11.			
12.			
	118	=Total Cover	

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	8	x 2 =	16
FAC species	57	x 3 =	171
FACU species	151	x 4 =	604
UPL species	0	x 5 =	0
Column Totals:	216 (A)		791 (B)

Prevalence Index = B/A = 3.66

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point DPU1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-23	10YR 2/1	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Blood Road Muck ILF Site City/County: Erie County Sampling Date: 6/8/20

Applicant/Owner: Ducks Unlimited State: NY Sampling Point: DPU2

Investigator(s): J. Fraser Section, Township, Range: Town of Elma

Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope %: 5

Subregion (LRR or MLRA): LRR L Lat: 42°47'20.565"N Long: 78°36'3.474"W Datum: WGS84

Soil Map Unit Name: Palms muck (pa) NWI classification: PEM 1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DPU2

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Ambrosia artemisiifolia*	70	Yes	FACU
2. *Solidago canadensis*	50	Yes	FACU
3. *Taraxacum officinale*	3	No	FACU
4. *Lamium purpureum*	1	No	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	124 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	123	x 4 =	492
UPL species	1	x 5 =	5
Column Totals:	124 (A)		497 (B)

Prevalence Index = B/A = 4.01

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point DPU2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/1	100					Loamy/Clayey	
14-20	10YR 2/1	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ____ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Blood Road Muck ILF Site City/County: Erie County Sampling Date: 6/8/20

Applicant/Owner: Ducks Unlimited State: NY Sampling Point: DPU3

Investigator(s): J. Fraser Section, Township, Range: Town of Elma

Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope %: 1

Subregion (LRR or MLRA): LRR L Lat: 42°47'22.085"N Long: 78°35'53.874"W Datum: WGS84

Soil Map Unit Name: Palms muck (Pa) NWI classification: PEM 1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 17

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DPU3

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Ambrosia artemisiifolia*	45	Yes	FACU
2. *Lolium perenne*	20	Yes	FACU
3. *Solidago canadensis*	20	Yes	FACU
4. *Asclepias syriaca*	12	No	UPL
5. *Daucus carota*	6	No	UPL
6. *Cirsium arvense*	4	No	FACU
7. *Symphyotrichum puniceum*	4	No	OBL
8. *Equisetum arvense*	3	No	FAC
9. *Lamium purpureum*	3	No	UPL
10. *Eupatorium perfoliatum*	1	No	FACW
11. *Rumex crispus*	1	No	FAC
12.			
	119 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	4	x 1 =	4
FACW species	1	x 2 =	2
FAC species	4	x 3 =	12
FACU species	89	x 4 =	356
UPL species	21	x 5 =	105
Column Totals:	119 (A)		479 (B)

Prevalence Index = B/A = 4.03

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point DPU3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-22	10YR 2/1	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Blood Road Muck ILF Site City/County: Erie County Sampling Date: 6/8/20

Applicant/Owner: Ducks Unlimited State: NY Sampling Point: DPU4

Investigator(s): J. Fraser Section, Township, Range: Town of Elma

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): none Slope %: 1

Subregion (LRR or MLRA): LRR L Lat: 42°47'28.2"N Long: 78°35'59.049"W Datum: WGS84

Soil Map Unit Name: Palms muck (Pa) NWI classification: PEM 1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 15

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DPU4

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	70	Yes	FACU
2. *Symphyotrichum puniceum*	8	No	OBL
3. *Barbarea vulgaris*	3	No	FAC
4. *Ambrosia artemisiifolia*	2	No	FACU
5. *Lythrum salicaria*	2	No	OBL
6. *Acer rubrum*	1	No	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	86 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	0	x 2 =	0
FAC species	4	x 3 =	12
FACU species	72	x 4 =	288
UPL species	0	x 5 =	0
Column Totals:	86 (A)		310 (B)

Prevalence Index = B/A = 3.60

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point DPU4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/1	100					Muck	
20-24	10YR 6/1	97	10YR 5/6	3	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- X Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Blood Road Muck ILF Site City/County: Erie County Sampling Date: 6/9/20

Applicant/Owner: Ducks Unlimited State: NY Sampling Point: DPU5

Investigator(s): J. Fraser Section, Township, Range: Town of Elma

Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope %: 1.5

Subregion (LRR or MLRA): LRR L Lat: 42°47'27.52"N Long: 78°36'4.32"W Datum: WGS84

Soil Map Unit Name: Palms muck (Pa) NWI classification: PEM 1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 15

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: DPU5

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Symphyotrichum prenanthoides*	50	Yes	FAC
2. *Cirsium arvense*	25	Yes	FACU
3. *Lamium purpureum*	15	No	UPL
4. *Asclepias syriaca*	10	No	UPL
5. *Equisetum arvense*	10	No	FAC
6. *Dipsacus fullonum*	2	No	FACU
7. *Eupatorium perfoliatum*	2	No	FACW
8. *Verbena hastata*	2	No	FACW
9. *Panicum capillare*	1	No	FAC
10.			
11.			
12.			
	117 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	4	x 2 =	8
FAC species	61	x 3 =	183
FACU species	27	x 4 =	108
UPL species	25	x 5 =	125
Column Totals:	117 (A)		424 (B)

Prevalence Index = B/A = 3.62

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point DPU5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-22	10YR 2/1	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

DPW3. Emergent wetland A was dominated by sensitive fern (*Onoclea sensibilis*) and common reed (*Phragmites australis*). Primary hydrology indicators included high-water table and saturation. A histosol was the hydric soil indicator.

DPW4. This portion of emergent wetland B was dominated by rough bentgrass (*Agrostis scabra*) and purplestem aster (*Symphyotrichum puniceum*). The primary hydrology indicator was saturation. A histosol was the hydric soil indicator.

DPW5. Emergent wetland C was dominated by purplestem aster (*Symphyotrichum puniceum*) and soft rush (*Juncus effusus*). The primary hydrology indicator was saturation. A histosol was the hydric soil indicator.

Upland Datapoints

DPU1. Upland forest dominated by sugar maple (*Acer saccharum*) and eastern white pine (*Pinus strobus*), with eastern teaberry (*Gaultheria procumbens*) in the understory.

DPU2. This higher area in the southwest corner of the field was dominated by perennial ragweed (*Ambrosia psilostachya*) and Canada goldenrod (*Solidago canadensis*).

DPU3. This area was dominated by perennial ragweed *(Ambrosia psilostachya*), perennial ryegrass (*Lolium perenne*), and Canada goldenrod (*Solidago canadensis*).

DPU4. This area was dominated by Canada goldenrod (*Solidago canadensis*).

DPU5. This area was dominated by crookedstem aster (*Symphyotrichum prenanthoides*) and Canada thistle (*Cirsium arvense*).

Streams and Linear Aquatic Resource Features

An unnamed tributary of Buffalo Creek close to where it enters the Site through the forest in the southwest corner of the property. This section is approximately 6 feet wide and 12 inches deep. Approximately 1,920 linear feet (LF) occur on the Site.

The unnamed tributary flows north, then east across the muck field. Grading activities adjacent to this stream will be above the mean high water elevation.

The muck fields are encircled by 3,556 LF of perimeter ditches. These ditches are approximately 8 feet wide and 12 inches deep. Construction plans include filling a portion of these ditches to allow more surface water to enter the Site.

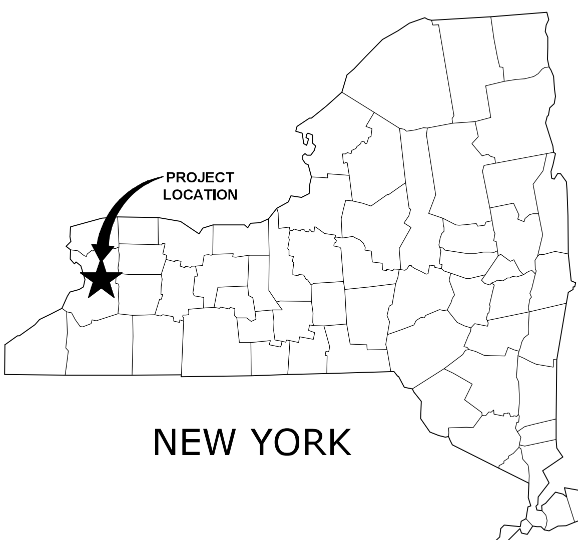
An interior drainage ditch that runs south to north through Wetland B. The ditch flows along the east side of an elevated access path before entering a culvert which carries the water to the perimeter ditch in the northeast corner of the site. Construction plans will include the disruption of this culvert.

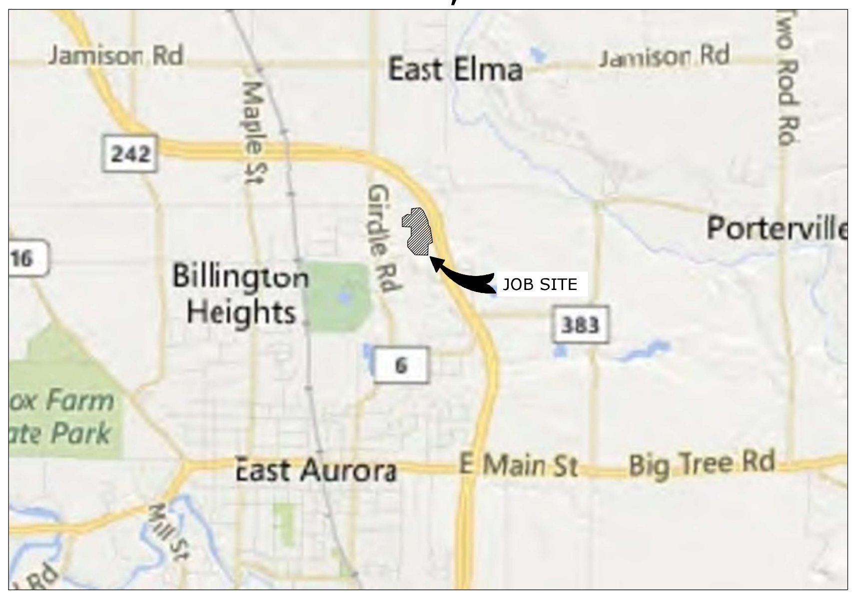
DUCKS UNLIMITED

PROJECT

BLOOD ROAD MUCK COMPENSATORY MITIGATION PROJECT

BUFFALO-EIGHTEEN MILE CREEK SERVICE AREA, ERIE COUNTY, NEW YORK





2000 0 1000 2000 4000

1 inch =2000 feet

PROJECT LOCATION
(LAT: 42° 47' 22"N, LON: 78° 35' 57"W)

SHEET INDEX

1. COVER SHEET
2. ESTIMATED QUANTITIES, SPECIFICATIONS & NOTES
3. WETLAND DELINEATION
4. OVERALL SITE PLAN
5. PARTIAL PLAN AND SECTIONS - WEST FIELD
6. PARTIAL PLAN AND SECTIONS - MAIN FIELD NORTH
7. PARTIAL PLAN AND SECTIONS - MAIN FIELD SOUTHWEST
8. PARTIAL PLAN AND SECTIONS - MAIN FIELD CENTRAL AND SOUTHEAST
9. EROSION AND SEDIMENT CONTROL PLAN
10. CONSTRUCTION DETAILS
11. SITE RESTORATION PLAN
12. PLANTING PLAN
13. PLANTING NOTES AND DETAILS
14. CREDIT GENERATION PLAN
15. MONITORING PLAN

NOTICE: Construction site safety is the sole responsibility of the contractor. Ducks Unlimited, Inc. shall not assume any responsibility for the safety of the work performed, persons engaged in the work, nearby structures, or of other persons on-site.

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SIGNED: 6/23/2021

FOR PERMIT

STATE OF NEW YORK
THOMAS A. STEINER
083972
LICENSED PROFESSIONAL ENGINEER

ARCADIS | Design & Consultancy for natural and built assets

ARCADIS OF NEW YORK, INC.

NO ALTERATIONS PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW

Professional Engineer's Name		ARCADIS Project No.	ARCADIS
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DUCKS UNLIMITED

COVER SHEET

BLOOD ROAD COMPENSATORY MITIGATION PROJECT

TOWN OF EAST AURORA, ERIE CO., NEW YORK

Revision	Revisions	Date	By
0	ISSUED FOR PERMIT REVIEW	6/22/2021	ERT

CAD FILE:

DESIGNED BY: PTO
DRAWN BY: KLS
SURVEYED BY: GB & JP
BIOLOGIST: JF (DU)

DATE: 6-22-2021

PROJECT NUMBER: US-NY-236-2

GLARO-NY2-77-01

ESTIMATED QUANTITIES

SPEC. #	ITEM	UNIT	QUANTITY
201	MOBILIZATION	LS	1
202	SITE PREPARATION	AC-P	3.14
NOTE 7	DEBRIS DISPOSAL	TN	2
204	DITCH PLUGS	CY-P	294
205	SITE GRADING	CY-P	1,766
305	RIPRAP	TN	64
311	REMOVAL OF CULVERTS AND STRUCTURES	LF	65
312	TILE EXPLORATION	LF-EXP	4,923
312	TILE REMOVAL	LF	300
401	SOIL EROSION AND POLLUTION CONTROL	LS	1
402	SEEDING AND MULCHING - STANDARD UPLAND SEED MIX	AC-P	1.14
402	SEEDING - TEMPORARY SEED MIX	AC-P	2.00
NOTE 17	HEAVY DISKING	AC	23.04

CONSTRUCTION NOTES:

1. BID ITEMS INCLUDED IN THE TABLE ARE DESCRIBED IN DETAIL IN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WETLAND RESTORATION, PROVIDED WITH THE BID DOCUMENTS. CONSTRUCTION NOTES HEREIN ARE NOT ALL INCLUSIVE; REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONTRACTOR SHALL NOTIFY DUCKS UNLIMITED IMMEDIATELY OF ANY APPARENT DISCREPANCIES WITHIN AND/OR BETWEEN ANY OF THE FOLLOWING:
   - BID DOCUMENTS
   - DESIGN DRAWINGS
   - SPECIFICATIONS
   - FIELD CONDITIONS
3. CONTRACTOR SHALL NOTIFY DUCKS UNLIMITED IMMEDIATELY OF ANY CHANGE IN SITE CONDITIONS THAT MAY VARY MATERIALLY FROM CONDITIONS SHOWN OR DESCRIBED IN THE DESIGN DOCUMENTS.
4. CONTRACTOR SHALL UTILIZE SAME VERTICAL AND HORIZONTAL COORDINATE SYSTEMS AS NOTED UNDER SURVEY CONTROL.
5. BID ITEM FOR MOBILIZATION SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL AND EQUIPMENT TO TRANSPORT ALL NEEDED LABOR, MATERIAL, AND EQUIPMENT TO AND FROM THE PROJECT SITE TO SUCCESSFULLY COMPLETE THE PROJECT AS SHOWN ON THE PLANS OR AS DESCRIBED BY THE ENGINEER. REFER TO MOBILIZATION SPECIFICATION 201. TRAFFIC MAINTENANCE AND CONTROL (SPECIFICATION 404) SHALL ALSO BE INCIDENTAL TO THIS LINE ITEM. PAYMENT FOR THIS LINE ITEM WILL BE BASED ON THE PAY QUANTITY LISTED ON THIS SHEET.
6. BID ITEM FOR SITE PREPARATION SHALL INCLUDE STRIPPING VEGETATION AND UNSUITABLE SOILS BENEATH DITCH PLUGS, PROPOSED GRADING AREAS, AND SCRAPE/BORROW AREAS. TOPSOIL SHALL BE TEMPORARILY STOCKPILED THEN REPLACED OVER DITCH PLUGS AND SCRAPE/BORROW AREAS. BID ITEM SHALL ALSO INCLUDE ANY TREE/BRUSH CLEARING WITHIN CONSTRUCTION AREA IF NECESSARY. REFER TO SITE PREPARATION SPECIFICATION 202. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR MISCELLANEOUS DEBRIS REMOVAL (I.E., MISC. FARMING EQUIPMENT, TILE FRAGMENTS, ETC.). BID ITEM SHALL ALSO INCLUDE REMOVAL OF APPROXIMATELY 5,800 LF OF METAL WIRE FENCING AND METAL POSTS SPACED APPROXIMATELY EVERY 50-FT AROUND THE PERIMETER OF THE MAIN AND WESTERN FIELDS. METAL WIRE FENCING IS GENERALLY 5 STRAND BUT VARIES ALONG THE FENCE LENGTH. PAYMENT FOR THIS LINE ITEM WILL BE BASED ON THE PAY QUANTITY LISTED ON THIS SHEET.
7. BID ITEM FOR DEBRIS DISPOSAL SHALL INCLUDE OFF-SITE DISPOSAL OF ONSITE DEBRIS DESIGNATED FOR REMOVAL AS DESCRIBED IN THE SITE PREPARATION ITEM ABOVE AND AS INDICATED ON THE SITE PLAN INCLUDING THE CULVERT AND TILE REMOVAL ITEMS DESCRIBED BELOW. DEBRIS SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL GUIDELINES. CONTRACTOR SHALL PROVIDE SCALE TICKETS WITH WEIGHTS INCLUDING TARE WEIGHTS, GROSS WEIGHTS, AND NET WEIGHTS OF MATERIAL DISPOSED FROM THE APPLICABLE DISPOSAL FACILITY. PAYMENT FOR THIS ITEM WILL BE BASED ON ACTUAL TONNAGE OF MATERIAL DISPOSED OFFSITE, AS VERIFIED BY SCALE TICKETS FROM DISPOSAL FACILITY.
8. BID ITEM FOR DITCH PLUGS SHALL INCLUDE ALL WORK REQUIRED TO CONSTRUCT THE SOIL PLUGS AND DITCH FILL DEPICTED ON THE DRAWINGS IN WEST FIELD. INCLUDES WORK REQUIRED TO EXCAVATE, HAUL, PLACE AND COMPACT MATERIAL FROM THE BORROW AREAS AND PLACEMENT OF TOPSOIL TO THE LINES AND GRADES DEPICTED ON THE DRAWINGS. MATERIAL SHALL BE PLACED AND COMPACTED IN LIFTS NOT EXCEEDING 8 INCHES IN ACCORDANCE WITH SPECIFICATION SECTION 204.
9. BID ITEM FOR SITE GRADING SHALL INCLUDE ALL WORK REQUIRED TO EXCAVATE, HAUL, PLACE, AND COMPACT FILL MATERIAL TO THE LINES AND GRADES DEPICTED ON THE DRAWINGS IN THE MAIN FIELD. REFER TO CONSTRUCTED TOPOGRAPHY SPECIFICATION 205. FILL SHALL BE PLACED IN MAXIMUM LIFTS OF 18 INCHES AND COMPACTED WITH A MINIMUM OF 3 PASSES USING SUITABLE CONSTRUCTION EQUIPMENT.
10. BID ITEM FOR RIPRAP SHALL INCLUDE DU CLASS I ROCK RIPRAP OR NEW YORK DEPARTMENT OF TRANSPORTATION "LIGHT STONE" (ITEM NO. 620.03M) AND NON-WOVEN FILTER FABRIC AS SHOWN ON THE PLANS. NON-WOVEN FILTER FABRIC IS REQUIRED BENEATH ALL ROCK RIPRAP AND SHALL BE SECURED TO SLOPES AND BOTTOM USING PINS AS NOTED IN SPECIFICATION 305. NON-WOVEN FILTER FABRIC SHALL MEET CLASS 1 SURVIVABILITY REQUIREMENTS FOR PERMANENT EROSION CONTROL IN ACCORDANCE WITH AASHTO M-288. CONTRACTOR SHALL PROVIDE SCALE TICKETS WITH WEIGHTS INCLUDING TARE WEIGHTS, GROSS WEIGHTS, AND NET WEIGHTS OF MATERIAL DELIVERED. PAYMENT FOR THIS LINE ITEM WILL BE BASED ON THE PAY QUANTITY LISTED ON THIS SHEET.
11. BID ITEM FOR REMOVAL OF EXISTING CULVERTS SHALL BE PERFORMED AS SHOWN ON THE DRAWINGS AND SHALL ABIDE BY SPECIFICATION 311. DUCKS UNLIMITED WILL PAY FOR ACTUAL LINEAR FEET OF PIPING REMOVED. CONTRACTOR SHALL BACKFILL VOID SPACE CREATED BY PIPE REMOVAL WITH EXISTING ONSITE MATERIALS GENERATED FROM GRADING ACTIVITIES. MATERIAL SHALL BE BACKFILLED IN ACCORDANCE WITH SPECIFICATION SECTION 204. REFER TO SECTION 204 FOR DEWATERING AND COMPACTION REQUIREMENTS. OFFSITE DISPOSAL COSTS OF CULVERT PIPING REMOVED SHALL BE PROVIDED WITHIN THE DEBRIS DISPOSAL ITEM.
12. THE TILE EXPLORATION BID ITEM IS FOR THE EXPLORATION OF EXISTING TILES (SPECIFICATION 312). EXCAVATION SHALL BE PERFORMED AS SHOWN ON THE PLANS, AND ALL TILES FOUND SHALL BE REPORTED TO THE DU FIELD ENGINEER BY THE CONTRACTOR. EXPLORATION EXCAVATIONS SHALL BE BACKFILLED WITH ORIGINAL SOILS AND COMPACTED FIRM AFTER EXPLORATION. THE PAYMENT FOR THIS LINE ITEM IS BASED ON LINEAR FEET OF EXPLORATION CONDUCTED.
13. THE TILE REMOVAL BID ITEM IS FOR THE REMOVAL OF EXISTING TILES (SPECIFICATION 312). REMOVAL OF TILE SHALL ABIDE BY SPECIFICATION 312.23. ALL TILE MATERIAL SHALL BE HANDLED AND/OR REMOVED IN ACCORDANCE WITH SPECIFICATION 312.24. THE PAYMENT FOR THIS LINE ITEM IS BASED ON LINEAR FEET OF TILE REMOVED; DUCKS UNLIMITED WILL PAY FOR ACTUAL LINEAR FEET OF TILE REMOVED. OFFSITE DISPOSAL COSTS FOR TILE REMOVED SHALL BE PROVIDED WITHIN THE DEBRIS DISPOSAL ITEM.
14. THE BID ITEM FOR SOIL EROSION AND POLLUTION CONTROL SHALL INCLUDE THE SUPPLY, INSTALLATION, AND MAINTENANCE OF THE EROSION AND SEDIMENT CONTROLS SHOWN AND DESCRIBED ON THE DESIGN DRAWINGS AND ANY ADDITIONAL CONTROLS NEEDED TO MAINTAIN COMPLIANCE WITH NEW YORK STATE REGULATIONS UNTIL VEGETATION IS FULLY ESTABLISHED INCLUDING BUT NOT LIMITED TO, REPAIR OF ANY DAMAGES RESULTING FROM EROSION OR SEDIMENTATION DURING THIS TIME PERIOD, AND REMOVAL AND PROPER DISPOSAL OF TEMPORARY EROSION AND SEDIMENT CONTROLS IMMEDIATELY FOLLOWING FULL VEGETATIVE ESTABLISHMENT UNLESS OTHERWISE NOTED ON THE DRAWINGS. EXACT LOCATION AND QUANTITY MAY VARY DEPENDING UPON ACTUAL SITE CONDITIONS. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF WORK AND WILL BE MAINTAINED UNTIL FINAL STABILIZATION OF THE SITE. THE CONTRACTOR SHALL BID A LUMP SUM FOR SOIL EROSION AND POLLUTION CONTROL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL, INSPECT, AND MAINTAIN ALL BEST MANAGEMENT PRACTICES REQUIRED TO PREVENT SILT AND POLLUTION RUNOFF FROM THE WORK AREA AND COMPLETELY REMOVE AND DISPOSE OF ALL NON-DEGRADABLE TEMPORARY MEASURES FOLLOWING FULL VEGETATIVE ESTABLISHMENT. THE CONTRACTOR SHALL PREPARE AND MAINTAIN ON-SITE ALL REQUIRED INSPECTION FORMS AND UP-TO-DATE DOCUMENTATION ACCORDING TO THE PERMIT REGULATIONS. PAYMENT FOR THIS LINE ITEM WILL BE BASED ON THE PAY QUANTITY LISTED ON THIS SHEET.
15. BID ITEM SEEDING AND MULCHING SHALL INCLUDE THE MATERIAL, EQUIPMENT, AND LABOR REQUIRED TO INSTALL THE "STANDARD UPLAND SEED MIX" WHERE SHOWN ON THE PLANS; LEVELING AND PREPARATION OF THE TOPSOIL SURFACE FOR SEEDING AND MULCHING; AND APPLICATION OF SEED, MULCH AND FERTILIZER/LIME AS REQUIRED BY THE DESIGN DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHMENT OF A UNIFORM, PERENNIAL VEGETATIVE COVER WITH A DENSITY OF EIGHTY (80) PERCENT, INCLUDING RESEEDING, REMULCHING, AND/OR RE-FERTILIZING OF BARE AREAS, AS NEEDED. APPROVED MULCH SHALL BE APPLIED TO ALL AREAS SEEDED AS DIRECTED BY THE DU FIELD ENGINEER. REFER TO DU SPECIFICATION 402. PAYMENT WILL BE BASED ON PLANNED ACRES.
16. BID ITEM FOR SEEDING - TEMPORARY SEED MIX SHALL INCLUDE THE MATERIAL, EQUIPMENT, AND LABOR REQUIRED TO INSTALL THE "TEMPORARY SEED MIX" WHERE SHOWN ON THE PLANS INCLUDING LEVELING AND PREPARATION OF TOPSOIL FOR SEEDING AND APPLICATION OF SEED AS REQUIRED BY THE DESIGN DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHMENT OF A UNIFORM VEGETATIVE COVER WITH A DENSITY OF EIGHTY (80) PERCENT, INCLUDING RESEEDING OF BARE AREAS AS NEEDED. PAYMENT BASED ON PLANNED ACRES .
17. BID ITEM FOR HEAVY DISKING SHALL INCLUDE THE MATERIAL, EQUIPMENT, AND LABOR REQUIRED TO TILL THE AREAS INDICATED ON THE PLANS. REFER TO THE RESTORATION PLAN FOR ADDITIONAL NOTES, REQUIREMENTS, AND SPECIFIED AREAS. PAYMENT WILL BE BASED ON ACRES.
18. DEWATERING AND WATER MANAGEMENT IS THE CONTRACTOR'S RESPONSIBILITY, AND IS CONSIDERED INCIDENTAL TO THE PROJECT.
19. INVASIVE SPECIES ERADICATION TO BE COMPLETED BY OTHERS UNDER SEPARATE CONTRACT.

SPECIFICATIONS

101 GENERAL CONDITIONS
102 SUPPLEMENTAL CONDITIONS
201 MOBILIZATION
202 SITE PREPARATION
204 EMBANKMENT CONSTRUCTION
205 CONSTRUCTED TOPOGRAPHY
206 WATER
305 RIPRAP REVETMENT AND AGGREGATE PLACEMENT
311 REMOVAL OF CULVERTS AND STRUCTURES
312 TILE DRAIN LOCATION AND REMOVAL
401 SOIL EROSION AND POLLUTION CONTROL
402 SEEDING AND MULCHING
403 HERBICIDE APPLICATION; NO SPEC FOR HEAVY DISKING
404 TRAFFIC MAINTENANCE AND CONTROL

SEQUENCE OF CONSTRUCTION:

1. HOLD PRE-CONSTRUCTION MEETING.
2. NOTIFY SEDIMENT CONTROL INSPECTOR 24 HOURS PRIOR TO START OF CONSTRUCTION.
3. INSTALL STABILIZED CONSTRUCTION ACCESS.
4. PERFORM GRUBBING REQUIRED FOR INSTALLATION OF PERIMETER CONTROLS.
5. INSTALL PERIMETER CONTROLS, NOTIFY SEDIMENT CONTROL INSPECTOR, AND OBTAIN APPROVAL BEFORE PROCEEDING FURTHER.
6. PERFORM SITE PREPARATION WORK AND CLEARING, STOCKPILE TOPSOIL TO BE USED LATER.
7. COMPLETE TILE EXPLORATION AND CULVERT REMOVAL. REMOVE DRAINAGE TILES WHEN ENCOUNTERED AND CULVERTS AS INDICATED ON THE PLANS.
8. COMPLETE CONSTRUCTION OF DITCH PLUGS UTILIZING MATERIAL FROM DESIGNATED SCRAPE/BORROW AREAS AND CONSTRUCTION OF SPILLOVER AREAS. SPREAD TOPSOIL BACK ACROSS CONSTRUCTED FEATURES AND SEED/STABILIZE AS SOON AS PRACTICAL FOLLOWING COMPLETION.
9. COMPLETE CONSTRUCTION OF SITE AREAS TO BE GRADED. PLACE TOPSOIL AND SEED/STABILIZE AS WORK IS COMPLETED.
10. COMPLETE ALL ADDITIONAL SEEDING AND STABILIZATION AS REQUIRED UNDER CONTRACT (TO BE COMPLETED BY CONTRACTOR).
11. DU TO COMPLETE ALL WETLAND SEEDING AND WETLAND AND UPLAND PLANTINGS.
12. NOTIFY SEDIMENT CONTROL INSPECTOR AFTER COMPLETION OF PLANTING AND STABILIZATION. OBTAIN APPROVAL TO REMOVE TEMPORARY SEDIMENT AND EROSION CONTROLS FOR PROJECT AFTER ESTABLISHMENT OF AT LEAST 80% UNIFORM DENSITY OF PERMANENT VEGETATION.
13. CONTRACTOR WILL REMOVE ALL TEMPORARY EROSION CONTROL MEASURES UPON APPROVAL FROM DESIGNATED INSPECTOR.

NOTES:

NOTIFY THE DU FIELD ENGINEER IMMEDIATELY OF ANY SEDIMENT AND EROSION CONTROL CONCERNS THAT ARISE (E.G.,INADEQUATE MEASURES, DAMAGED MEASURES, MAJOR STORM EVENTS, OFF-SITE EROSION OR SEDIMENTATION POTENTIALLY ASSOCIATED WITH SITE ACTIVITIES).

SURVEY CONTROL:

SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION (FT)	TYPE
1	1017320.74	1143822.86	839.94	CAPPED REBAR
2	1017029.70	1143610.34	841.90	CAPPED REBAR

NOTES:
1. HORIZONTAL DATUM: NEW YORK STATE PLANE, WEST ZONE, NAD 83, U.S. SURVEY FEET
   VERTICAL DATUM: NAVD88, FEET
2. SITE CONTROL ESTABLISHED WITH NYSNET REAL TIME NETWORK AND VERIFIED WITH ONLINE POSITIONING USER SERVICE (OPUS).

SIGNED: 6/23/2021

FOR PERMIT

STATE OF NEW YORK · THOMAS A. STEINER · 083972 · LICENSED PROFESSIONAL ENGINEER

Professional Engineer's Name: THOMAS STEINER
Professional Engineer's No.: 083972 | State: NY

ARCADIS — Design & Consultancy for natural and built assets

ARCADIS OF NEW YORK, INC.

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ARCADIS Project No. 30053992

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DUCKS UNLIMITED®

ESTIMATED QUANTITIES, SPECIFICATIONS & NOTES
BLOOD ROAD COMPENSATORY MITIGATION PROJECT
TOWN OF EAST AURORA, ERIE CO., NEW YORK

Revision	Revisions	Date	By
0	ISSUED FOR PERMIT REVIEW	6/22/2021	ERT

CAD FILE: BL-DR02-SPECIFICATIONS.DWG
DESIGNED BY: PTO
DRAWN BY: KLS
SURVEYED BY: GB & JP
BIOLOGIST: JF (DU)
DATE: 6-22-2021
PROJECT NUMBER: US-NY-236-2
GLARO-NY2-77-02

C:\Users\ETaetsch\BIM 360\Arcadis\AUS-DUCKS UNLIMITED-BLOOD ROAD-EAST AURORA New York\Project Files\2021\01-In Progress\01-DWG\BL-DR02-Specifications.dwg, 6/21/2021 3:41 PM, Taetsch, Elise, Specifications, None
Xref List: X-DU_TBLOCK_V1

SOIL BORINGS

SOIL BORING #DPW1 ELEV. 841.42'

0 TO 26" MUCK
SATURATION OBSERVED AT THE SURFACE
WATER TABLE AT 11"

SOIL BORING #DPW2 ELEV. 839.48'

0-23" MUCK
SATURATION OBSERVED AT THE SURFACE
WATER TABLE AT 9"

SOIL BORING #DPW3 ELEV. 840.74'

0-20" MUCK
SATURATION OBSERVED AT THE SURFACE
WATER TABLE AT 8"

SOIL BORING #DPW4 ELEV. 837.68'

0-24" MUCK
SATURATION OBSERVED AT THE SURFACE
WATER TABLE AT 17"

SOIL BORING #DPW5 ELEV. 843.01'

0-24" MUCK
SATURATION OBSERVED AT THE SURFACE
WATER TABLE AT 21"

SOIL BORING # DPU1 ELEV. 843.00'

0-23" MUCK
SATURATION OBSERVED AT 14"

SOIL BORING # DPU2 ELEV. 844.34'

0-14" SANDY LOAM (POSSIBLY FILL)
14"-20" MUCK
NO VISIBLE MOISTURE

SOIL BORING # DPU3 ELEV. 839.48'

0-22" MUCK
SATURATION OBSERVED AT 17"

SOIL BORING # DPU4 ELEV. 837.64'

0-20" MUCK
20-24" MARL
SATURATION OBSERVED AT 15"

SOIL BORING # DPU5 ELEV. 843.79'

0-22" MUCK
SATURATION OBSERVED AT 15"

SOIL BORING # MW-1 ELEV. 844.21

0-24" MUCK
24"-41" MIXED MUCK AND PEAT/WOOD
41-42" MARL
WATER TABLE OBSERVED AT 7"

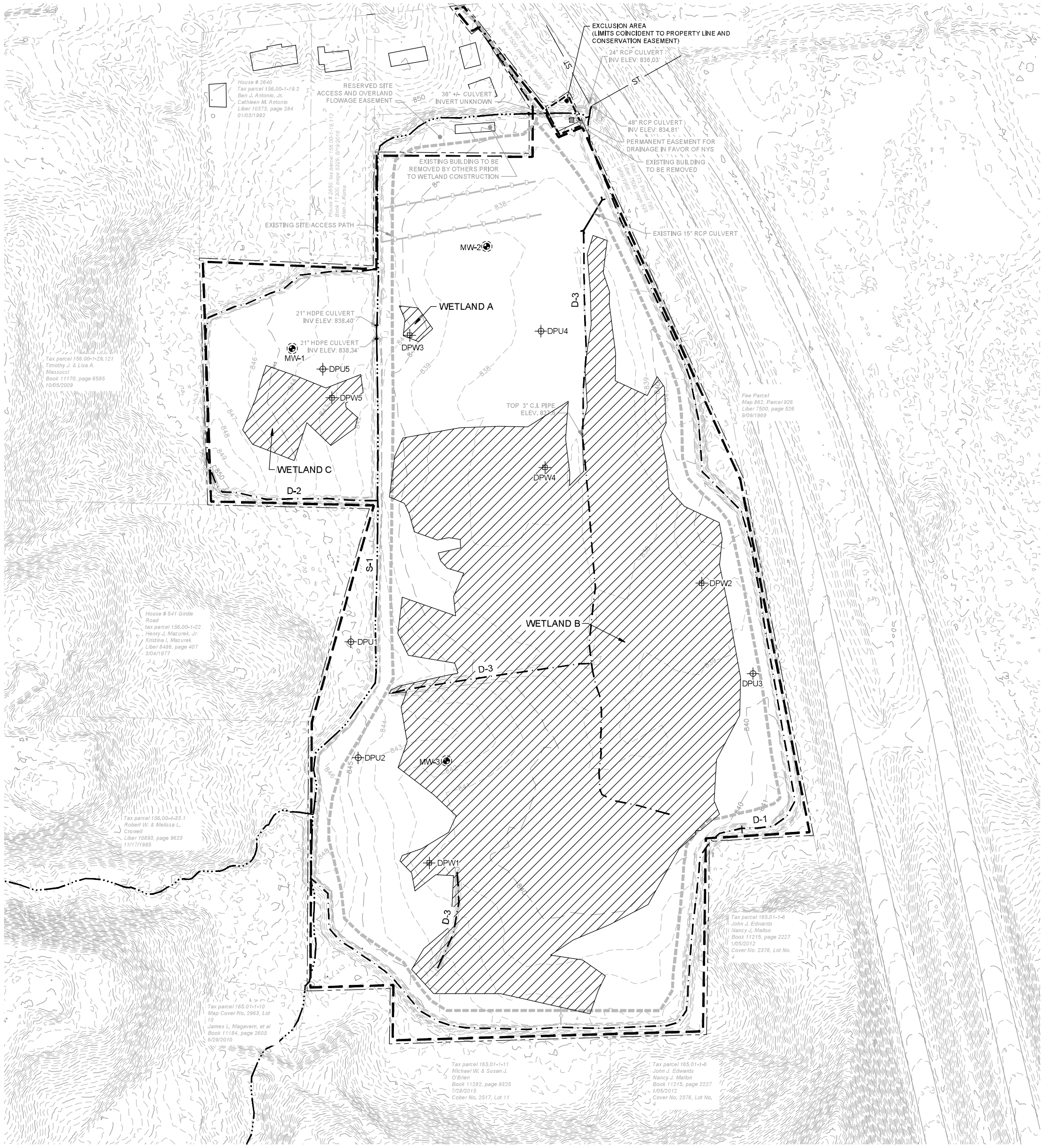
SOIL BORING # MW-2 ELEV. 838.17

0-10" MUCK
10"-13" PEAT
13-43" MARL
WATER TABLE OBSERVED AT 42"

SOIL BORING # MW-3 ELEV. 841.91

0-24" MUCK
24-27" GREY SILT AND 1"-2" ROCK
27-32"' TAN SILTY CLAY
32-43" GRAY SILT WITH SHELLS
WATER TABLE OBSERVED AT 40"

BORINGS WERE PROGRESSED WITH A HAND AUGER, MATERIAL CLASSIFICATIONS AND OBSERVATIONS WERE MADE DURING THE SUBSURFACE EXPLORATION AT THE SITE AND ARE NOT BASED ON LABORATORY TEST DATA. CONDITIONS BETWEEN LOCATIONS EXPLORED MAY DIFFER FROM THE CONDITIONS DESCRIBED ON THESE PLANS.



LEGEND

- EXISTING GRADE MAJOR CONTOUR (5' INTERVAL)
- EXISTING GRADE MINOR CONTOUR (1' INTERVAL)
- EDGE OF PAVEMENT
- PROPERTY LINE
- ADJACENT PROPERTY PARCELS
- EXCLUSION AREA
- CONSERVATION EASEMENT BOUNDARY (COINCEDENT WITH PROPERTY LINE EXCEPT AT EXCLUSION AREA)
- EXISTING OBSERVED DRAINAGE TILE
- EXISTING STREAM CENTERLINE
- EXISTING DITCH CENTERLINE
- ST EXISTING STORM LINE
- EXISTING SITE ACCESS PATH
- MW-1 EXISTING MONITORING WELL
- EXISTING CULVERT
- DPU UPLAND DATAPOINT
- DPW WETLAND DELINEATION DATAPOINT
- EXISTING BUILDING
- EXISTING DELINEATED WETLAND

WETLAND INVENTORY TABLE			
WETLAND NAME	WETLAND TYPE	WETLAND (ACRES)	DATA POINTS
Wetland A	PEM	0.05	DPW3
Wetland B	PEM	11.95	DPW1, DPW2, DPW4
Wetland C	PEM	0.51	DPW5

STREAM/DITCH INVENTORY TABLE		
LABEL	NAME	LINEAR FEET
S-1	NYSDEC Stream (Tributary to Buffalo Creek)	1989
D-1	Main Perimeter Ditch	2645
D-2	Perimeter Ditch	927
D-3	Interior Ditches	1789

NOTES:

1. SEE DRAWING 4 FOR ADDITIONAL BASEMAP INFORMATION.
2. WETLAND DELINEATION PERFORMED BY DUCKS UNLIMITED JUNE 2020.

GRAPHIC SCALE

100 0 50 100 200 400

1 inch = 100 feet

SIGNED: 6/23/2021

FOR PERMIT

STATE OF NEW YORK — THOMAS A. STEINER — 083972 — LICENSED PROFESSIONAL ENGINEER

ARCADIS

ARCADIS OF NEW YORK, INC.

NO ALTERATIONS PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW

Professional Engineer's Name
THOMAS STEINER
Professional Engineer's No. 083972 State NY

ARCADIS Project No. 30053992

ARCADIS
One Lincoln Center
110 West Fayette Street, Suite 300
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7322 NEWMAN BOULEVARD, BUILDING 1
DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org
DUCKS UNLIMITED

WETLAND DELINEATION

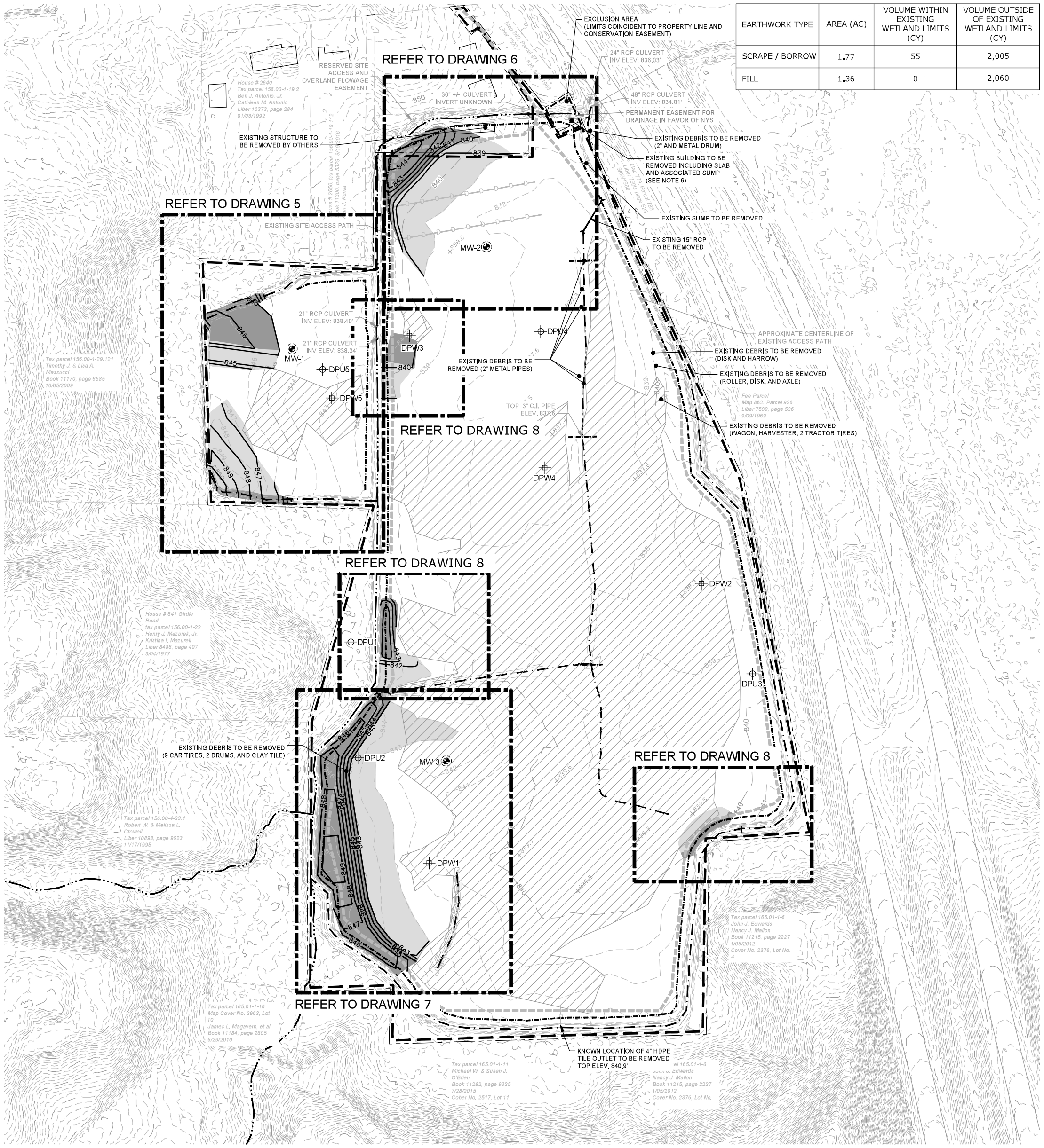
BLOOD ROAD COMPENSATORY MITIGATION PROJECT

TOWN OF EAST AURORA, ERIE CO., NEW YORK

Revision	Revisions	Date	By
0	ISSUED FOR PERMIT REVIEW	6/22/2021	ERT

CAD FILE:

DESIGNED BY: PTO
DRAWN BY: KLS
SURVEYED BY: GB & JP
BIOLOGIST: JF (DU)
DATE: 6-22-2021
PROJECT NUMBER: US-NY-236-2
GLARO-NY2-77-03



EARTHWORK TYPE	AREA (AC)	VOLUME WITHIN EXISTING WETLAND LIMITS (CY)	VOLUME OUTSIDE OF EXISTING WETLAND LIMITS (CY)
SCRAPE / BORROW	1.77	55	2,005
FILL	1.36	0	2,060

N

LEGEND

- EXISTING GRADE MAJOR CONTOUR (5' INTERVAL)
- EXISTING GRADE MINOR CONTOUR (1' INTERVAL)
- EXISTING SPOT ELEVATION
- EDGE OF PAVEMENT
- ST — EXISTING STORM LINE
- PROPERTY LINE
- ADJACENT PROPERTY PARCELS
- EXCLUSION AREA
- CONSERVATION EASEMENT BOUNDARY (COINCEDENT WITH PROPERTY LINE EXCEPT AT EXCLUSION AREA)
- EXISTING STREAM CENTERLINE
- EXISTING DITCH CENTERLINE
- EXISTING OBSERVED DRAINAGE TILE (SEE NOTE 2)
- TILE DRAIN EXPLORATION TRENCH (SEE DETAIL 4 ON SHEET 10)
- EXISTING SITE ACCESS PATH
- EXISTING CULVERT
- DPU — UPLAND DATAPOINT
- DPW — WETLAND DELINEATION DATAPOINT
- MW-1 — EXISTING MONITORING WELL
- EXISTING BUILDING
- 000 — PROPOSED FINAL GRADE CONTOUR (1' INTERVAL)
- PROPOSED SCRAPE/BORROW AREA
- PROPOSED FILL
- EXISTING DELINEATED WETLAND

NOTES:

1. FIELD SURVEY PERFORMED BY DUCKS UNLIMITED ON THE WEEK OF JULY 6, 2020.
2. TILE LOCATIONS BASED ON FIELD OBSERVATION AND ARE APPROXIMATE ONLY. CONTRACTOR TO VERIFY TILE LOCATIONS AT THE TIME OF CONSTRUCTION.
3. PROPERTY LINE BASED ON BOUNDARY REPLACEMENT SURVEY BY DANIEL L. BARRY SURVEYOR, LLC DATED JANUARY 28, 2020.
4. CONTRACTOR IS RESPONSIBLE FOR DEWATERING OF WORK AREAS, AS NEEDED FOR CONSTRUCTION OF THE TOPOGRAPHY SHOWN, IN ACCORDANCE WITH THE DU STANDARD SPECIFICATIONS FOR CONSTRUCTION.
5. EXISTING PERIMETER WIRE FENCING TO BE REMOVED IS GENERALLY LOCATED ALONG THE PERIMETER OF THE MAIN AND WESTERN FIELD, AS WELL AS IN BETWEEN FIELDS. CONTRACTOR SHALL VERIFY EXTENTS PRIOR TO CONSTRUCTION. SEE ESTIMATED QUANTITIES, NOTES, & SPECIFICATIONS SHEET FOR ADDITIONAL INFORMATION.
6. EXISTING STRUCTURE, CONCRETE SLAB, AND ASSOCIATED SUMP SHALL BE REMOVED AND DISPOSED OF OFFSITE. SUMP SHALL BE BACKFILLED WITH SUITABLE ONSITE SOILS TO MATCH ADJACENT GRADE. DISTURBED AREAS SHALL BE RESTORED IN ACCORDANCE WITH SPECIFICATION SECTION 402 SEEDING AND MULCHING.

GRAPHIC SCALE

100 0 50 100 200 400

1 inch = 100 feet

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SIGNED: 6/23/2021

FOR PERMIT

STATE OF NEW YORK · THOMAS A. STEINER · 083972 · LICENSED PROFESSIONAL ENGINEER

ARCADIS — Design & Consultancy for natural and built assets

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Professional Engineer's No.: 083972 | State: NY

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DUCKS UNLIMITED

OVERALL SITE PLAN

BLOOD ROAD COMPENSATORY MITIGATION PROJECT

TOWN OF EAST AURORA, ERIE CO., NEW YORK

Revision	Revisions	Date	By
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CAD FILE:

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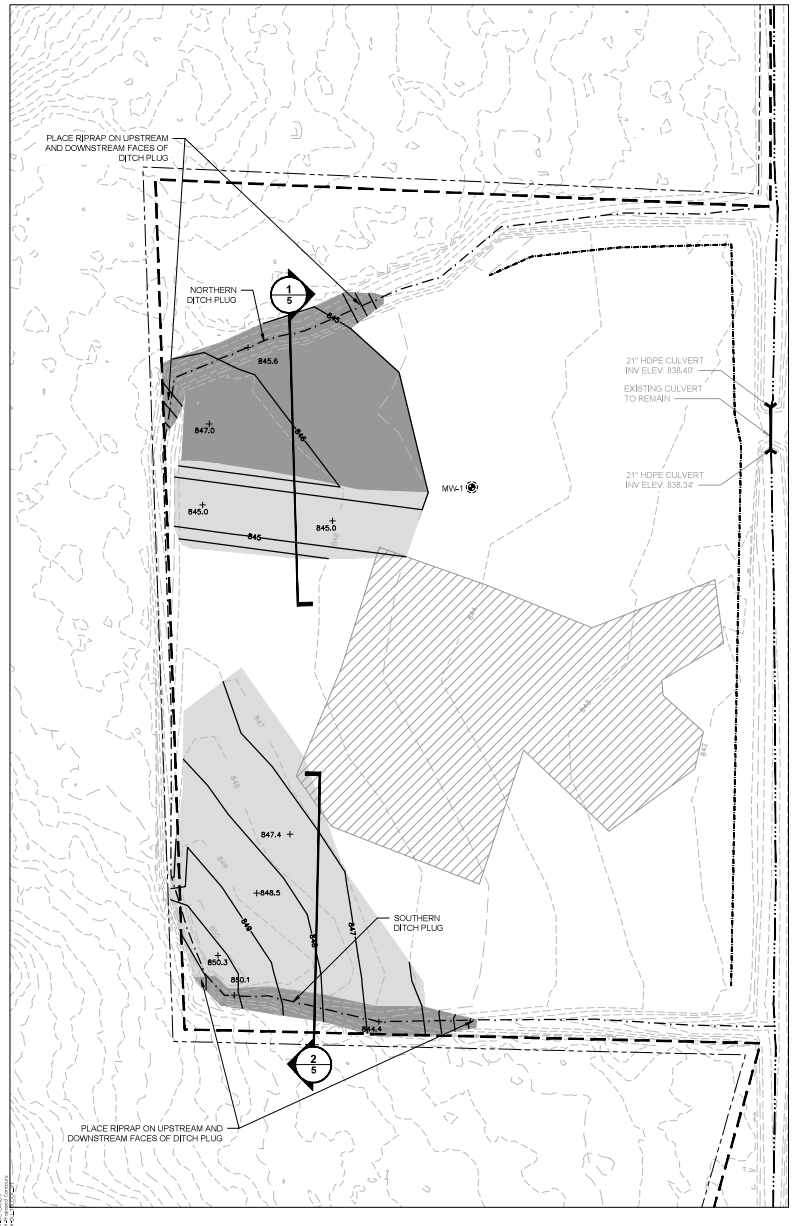
DRAWN BY: KLS
SURVEYED BY: GB & JP
BIOLOGIST: JF (DU)

DATE: 6-22-2021

PROJECT NUMBER: US-NY-236-2

GLARO-NY2-77-04

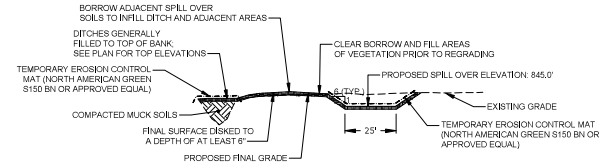


WESTERN FIELD PLAN

GRAPHIC SCALE

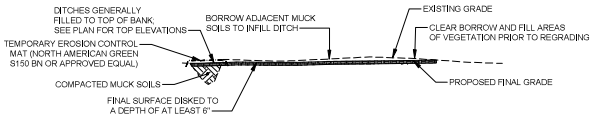
30 0 15 30 60 120

1 inch = 30 feet



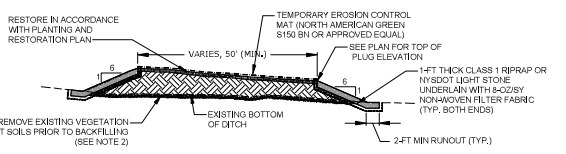
NORTHERN DITCH PLUG SECTION (1)

NOT TO SCALE



SOUTHERN DITCH PLUG SECTION (2)

NOT TO SCALE



NOTES:

1. ADJACENT MUCK SOILS WILL BE UTILIZED FOR DITCH PLUG CONSTRUCTION.
2. SURFICIAL VEGETATION AND SOFT ORGANIC SOILS REMOVED FOR SOIL PLUG CONSTRUCTION SHALL BE RELOCATED ADJACENT TO THE SOIL PLUG LOCATION AND SPREAD OUT TO A THICKNESS NOT EXCEEDING APPROXIMATELY 4-INCHES. AREAS SHALL BE RESTORED IN ACCORDANCE WITH THE RESTORATION PLAN.
3. REFER TO DRAWING 2 AND SPECIFICATIONS 202, 203, AND 204 FOR ADDITIONAL REQUIREMENTS RELATED TO SOIL PLUG CONSTRUCTION.
4. RIPRAP AND FILTER FABRIC SHALL BE INSTALLED IN ACCORDANCE WITH SPECIFICATION SECTION 305.

TYPICAL DITCH PLUG PROFILE (3)

NOT TO SCALE

N

LEGEND

- EXISTING GRADE MAJOR CONTOUR (5' INTERVAL)
- EXISTING GRADE MINOR CONTOUR (1' INTERVAL)
- PROPERTY LINE
- CONSERVATION EASEMENT BOUNDARY (COINCIDENT WITH PROPERTY LINE EXCEPT AT EXCLUSION AREA)
- EXISTING STREAM CENTERLINE
- EXISTING DITCH CENTERLINE
- EXISTING CULVERT
- MW-1 EXISTING MONITORING WELL
- PROPOSED FINAL GRADE CONTOUR (1' INTERVAL)
- + 844.7 PROPOSED FINAL GRADE SPOT ELEVATION
- PROPOSED SCRAPE/BORROW AREA
- PROPOSED FILL
- EXISTING DELINEATED WETLAND
- TILE DRAIN EXPLORATION TRENCH (SEE DETAIL 4 ON SHEET 10)

NOTES:

1. SEE DRAWING 4 FOR BASEMAP INFORMATION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING WITHIN EXISTING DITCHES IN SOIL PLUG AREAS AS NEEDED. DEWATERING SHALL BE CONDUCTED IN ACCORDANCE WITH NEW YORK STATE EROSION AND SEDIMENT CONTROL STANDARDS.
3. CLASS 1 RIPRAP SHALL HAVE THE FOLLOWING GRADATION: 100% PASSING 9". 35-80% PASSING 6". 0-20% PASSING 3" PER DU STANDARD SPECIFICATION FOR CONSTRUCTION OR ADHERE TO NYSDOT "LIGHT STONE" MATERIAL (ITEM NO. 620.03M).

SIGNED: 6/23/2021

FOR PERMIT

Professional Engineer's Name: THOMAS STEINER

Professional Engineer's No.: 083972 State: NY

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DUCKS UNLIMITED

PARTIAL PLAN AND SECTIONS - WEST FIELD

BLOOD ROAD COMPENSATORY MITIGATION PROJECT

TOWN OF EAST AURORA, ERIE CO., NEW YORK

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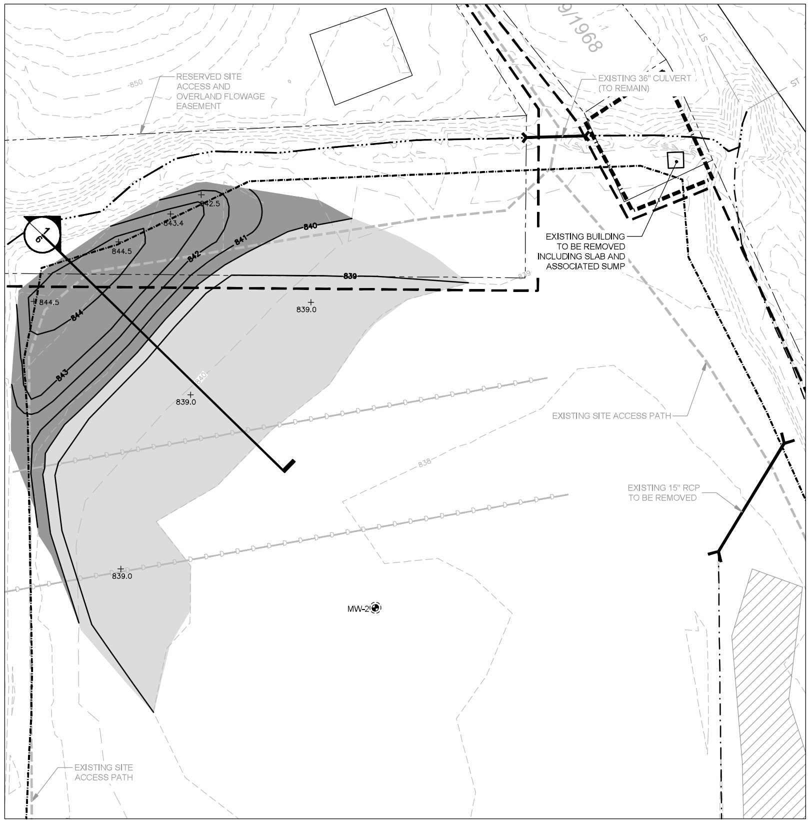
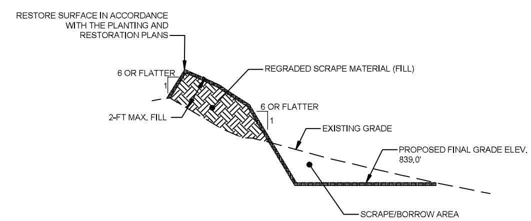


MAIN FIELD NORTH PLAN

GRAPHIC SCALE

30 0 15 30 60 120

1 inch = 30 feet



TYPICAL MAIN FIELD NORTH SECTION (1)

NOT TO SCALE – VERTICALLY EXAGGERATED FOR CLARITY

N

LEGEND

- EXISTING GRADE MAJOR CONTOUR (5' INTERVAL)
- EXISTING GRADE MINOR CONTOUR (1' INTERVAL)
- EXISTING STORM LINE
- PROPERTY LINE
- ADJACENT PROPERTY PARCELS
- EXCLUSION AREA
- CONSERVATION EASEMENT BOUNDARY (COINCEDENT WITH PROPERTY LINE EXCEPT AT EXCLUSION AREA)
- EXISTING STREAM CENTERLINE
- EXISTING DITCH CENTERLINE
- EXISTING OBSERVED DRAINAGE TILE (SEE NOTE 1)
- TILE DRAIN EXPLORATION TRENCH (SEE DETAIL 4 ON SHEET 10)
- EXISTING SITE ACCESS PATH
- EXISTING CULVERT
- MW-1 EXISTING MONITORING WELL
- EXISTING BUILDING
- 000 PROPOSED FINAL GRADE CONTOUR (1' INTERVAL)
- + 844.7 PROPOSED FINAL GRADE SPOT ELEVATION
- PROPOSED SCRAPE/BORROW AREA
- PROPOSED FILL
- EXISTING DELINEATED WETLAND

NOTES:

1. SEE DRAWING 4 FOR BASEMAP INFORMATION.
2. ACCESS PATH SHALL BE RELOCATED TO THE TOP OF THE NEWLY GRADED SCRAPE MATERIAL AS PART OF WETLAND RESTORATION ACTIVITIES. ACCESS PATH WILL CONSIST OF STANDARD UPLAND SEED MIX COVER AS DEPICTED ON THE RESTORATION PLAN.

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PARTIAL PLAN AND SECTIONS - MAIN FIELD NORTH
BLOOD ROAD COMPENSATORY MITIGATION PROJECT
TOWN OF EAST AURORA, ERIE CO., NEW YORK

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PROJECT NUMBER: US-NY-236-2

GLARO-NY2-77-06

SIGNED: 6/23/2021

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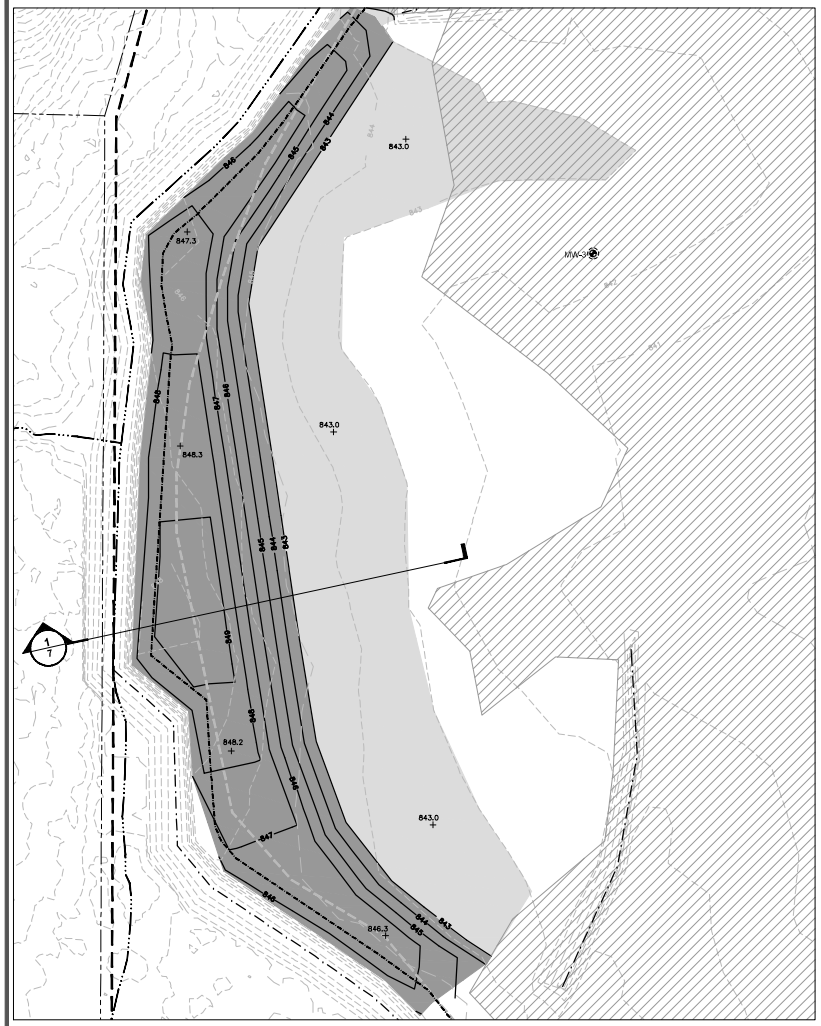
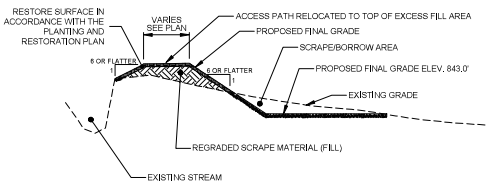


MAIN FIELD SOUTHWEST PLAN

GRAPHIC SCALE

30 0 15 30 60 120

1 inch = 30 feet



TYPICAL MAIN FIELD SOUTHWEST SECTION (1)

NOT TO SCALE

N

LEGEND

- EXISTING GRADE MAJOR CONTOUR (5' INTERVAL)
- EXISTING GRADE MINOR CONTOUR (1' INTERVAL)
- PROPERTY LINE
- CONSERVATION EASEMENT BOUNDARY (COINCEDENT WITH PROPERTY LINE EXCEPT AT EXCLUSION AREA)
- EXISTING SITE ACCESS PATH (SEE NOTE 2)
- TILE DRAIN EXPLORATION TRENCH (SEE DETAIL 4 ON SHEET 10)
- EXISTING STREAM CENTERLINE
- EXISTING DITCH CENTERLINE
- MW-1 EXISTING MONITORING WELL
- PROPOSED FINAL GRADE CONTOUR (1' INTERVAL)
- + 844.7 PROPOSED FINAL GRADE SPOT ELEVATION
- PROPOSED SCRAPE/BORROW AREA
- PROPOSED FILL
- EXISTING DELINEATED WETLAND

NOTES:

1. SEE DRAWING 4 FOR BASEMAP INFORMATION.
2. ACCESS PATH SHALL BE RELOCATED TO THE TOP OF THE NEWLY GRADED SCRAPE MATERIAL AS PART OF WETLAND RESTORATION ACTIVITIES. ACCESS PATH WILL CONSIST OF STANDARD UPLAND SEED MIX COVER AS DEPICTED ON THE RESTORATION PLAN.

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Professional Engineer's No.: 083972 State: NY

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DUCKS UNLIMITED

PARTIAL PLAN AND SECTIONS - MAIN FIELD SOUTHWEST
BLOOD ROAD COMPENSATORY MITIGATION PROJECT
TOWN OF EAST AURORA, ERIE CO., NEW YORK

Revision	Revisions	Date	By
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CAD FILE:

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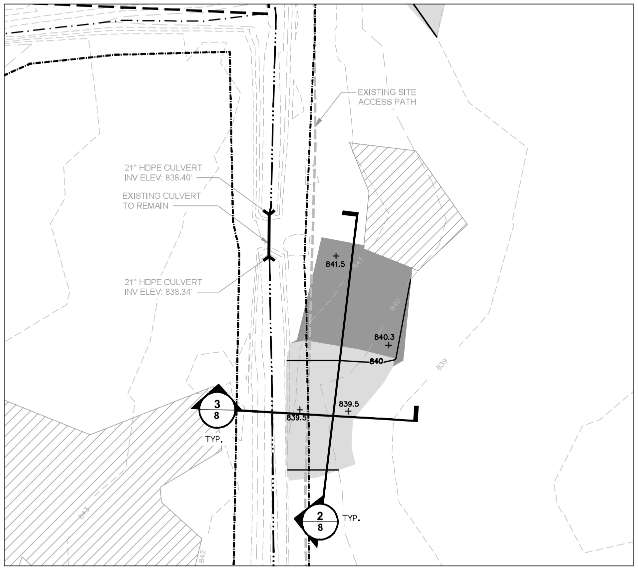
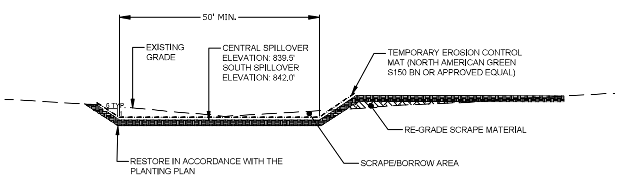


CENTRAL SPILLOVER AREA (1)

GRAPHIC SCALE

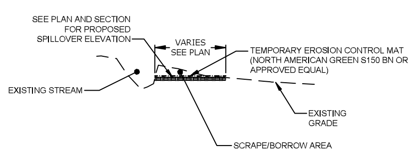
30 0 15 30 60 120

1 inch = 30 feet



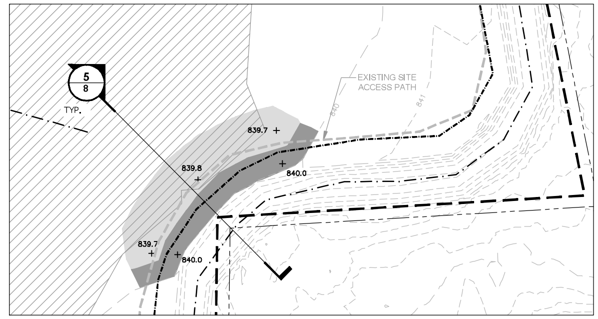
TYPICAL SPILLOVER SECTION (2)

NOT TO SCALE



TYPICAL SPILLOVER PROFILE (3)

NOT TO SCALE

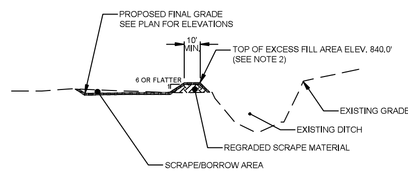


SOUTHEASTERN EXCESS FILL AREA (4)

GRAPHIC SCALE

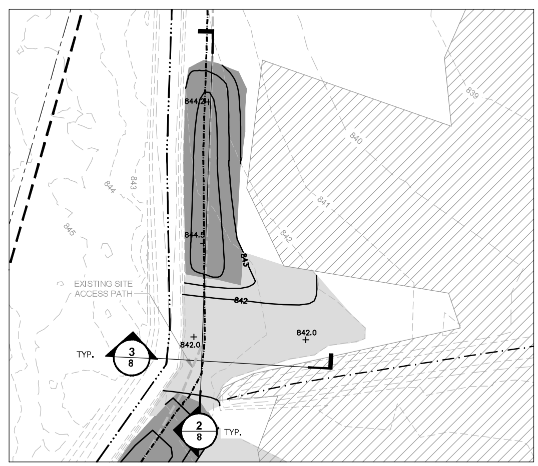
30 0 15 30 60 120

1 inch = 30 feet



TYPICAL SOUTHEAST EXCESS FILL AREA SECTION (5)

NOT TO SCALE



SOUTHERN SPILLOVER (6)

GRAPHIC SCALE

30 0 15 30 60 120

1 inch = 30 feet

LEGEND

- EXISTING GRADE MAJOR CONTOUR (5' INTERVAL)
- EXISTING GRADE MINOR CONTOUR (1' INTERVAL)
- PROPERTY LINE
- CONSERVATION EASEMENT BOUNDARY (COINCEDENT WITH PROPERTY LINE EXCEPT AT EXCLUSION AREA)
- EXISTING SITE ACCESS PATH
- TILE DRAIN EXPLORATION TRENCH (SEE DETAIL 4 ON SHEET 10)
- EXISTING CULVERT
- EXISTING STREAM CENTERLINE
- EXISTING DITCH CENTERLINE
- PROPOSED FINAL GRADE CONTOUR (1' INTERVAL)
- + 844.7 PROPOSED FINAL GRADE SPOT ELEVATION
- PROPOSED SCRAPE/BORROW AREA
- PROPOSED FILL
- EXISTING DELINEATED WETLAND

NOTES:

1. SEE DRAWING 4 FOR BASEMAP INFORMATION
2. SOUTHEAST EXCESS FILL AREA WILL BE CONSTRUCTED TO REDUCE THE POTENTIAL FOR LOSS OF SURFACE WATER FROM THE FIELD DUE TO AN EXISTING LOW POINT IN THE PERIMETER ELEVATIONS.
3. IF SAND IS ENCOUNTERED DURING CONSTRUCTION OF SPILLOVER AREAS, CONTRACTOR SHALL OVER-EXCAVATE A MINIMUM OF 2 FEET AND REPLACE WITH COMPACTED MUCK SOILS. BOTTOM OF ALL SPILLOVER AREAS SHALL BE COMPACTED TO A FIRM, NON-YIELDING CONDITION PRIOR TO SURFACE PREPARATION FOR SEEDING.

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PARTIAL PLAN AND SECTIONS - MAIN FIELD CENTRAL AND SOUTHEAST
BLOOD ROAD COMPENSATORY MITIGATION PROJECT
TOWN OF EAST AURORA, ERIE CO., NEW YORK

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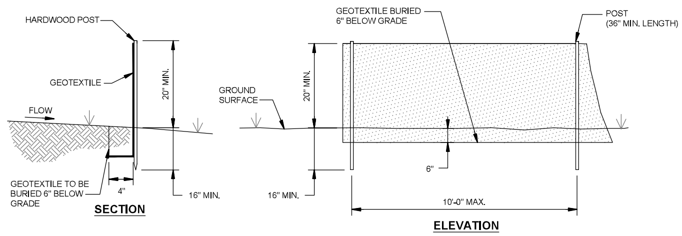
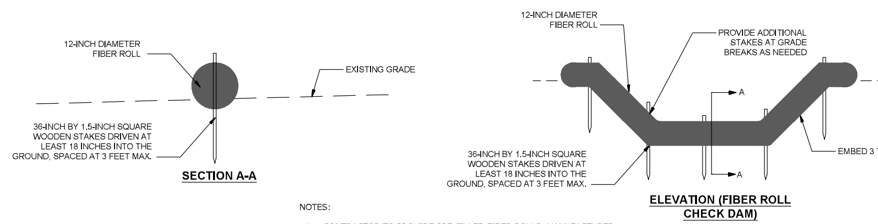


NOTES:

1. GEOTEXTILE FABRIC TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED AROUND A POST AND STAPLED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
3. THE INTEGRITY OF SILT FENCING SHALL BE MAINTAINED AS NEEDED FOR THE PROJECT DURATION AND UNTIL ADEQUATE VEGETATIVE GROWTH IS ESTABLISHED.
4. MATERIAL SHALL BE REMOVED WHENEVER "BULGES" DEVELOP IN THE SILT FENCE. AT A MINIMUM, SILT ACCUMULATIONS SHALL BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF OF THE HEIGHT OF SILT FENCE.

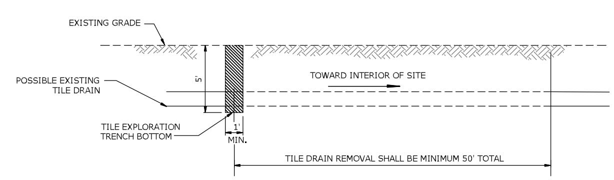
SILT FENCE (1)
NOT TO SCALE



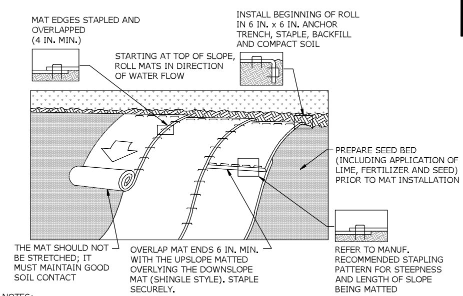
NOTES:

1. CONTRACTOR TO PROVIDE PRE-FILLED FIBER ROLLS. MANUFACTURER INFORMATION ON FILL AND NETTING TO BE PROVIDED PRIOR TO START OF CONSTRUCTION.
2. CONFIGURATION OF FIBER ROLL CHECK DAM NOT APPLICABLE IN ALL AREAS. REFER TO PLAN FOR REQUIRED LOCATIONS NOT LOCATED WITHIN DRAINAGE CHANNELS.

FIBER ROLL (2)
NOT TO SCALE



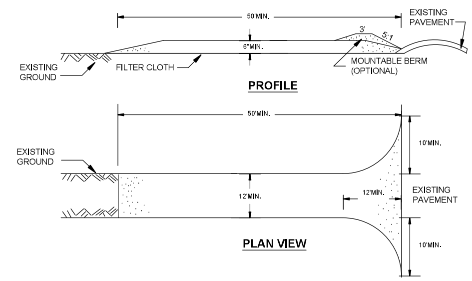
TILE DRAIN EXPLORATION DETAIL (4)
NOT TO SCALE



NOTES:

1. SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE MAT.
2. PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.
3. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.
4. MAT SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY MAT LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH MAT.
5. THE MAT SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. MATTED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 80% COVERAGE THROUGHOUT THE MATTED AREA. DAMAGED OR DISPLACED MATS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.
7. EROSION CONTROL MAT OVERLAP SHALL BE ORIENTED SUCH THAT UPSTREAM MATS OVERLAP DOWNSTREAM MATS.

EROSION CONTROL MAT (5)
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ACCESS SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STABILIZED CONSTRUCTION ACCESS

STABILIZED CONSTRUCTION ACCESS (3)
NOT TO SCALE

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SIGNED: 6/23/2021
FOR PERMIT

STATE OF NEW YORK · THOMAS A. STEINER · 083972 · LICENSED PROFESSIONAL ENGINEER

Professional Engineer's Name: THOMAS STEINER
Professional Engineer's No.: 083972 | State: NY

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CONSTRUCTION DETAILS
BLOOD ROAD COMPENSATORY MITIGATION PROJECT
TOWN OF EAST AURORA, ERIE CO., NEW YORK

Revision	Revisions	Date	By
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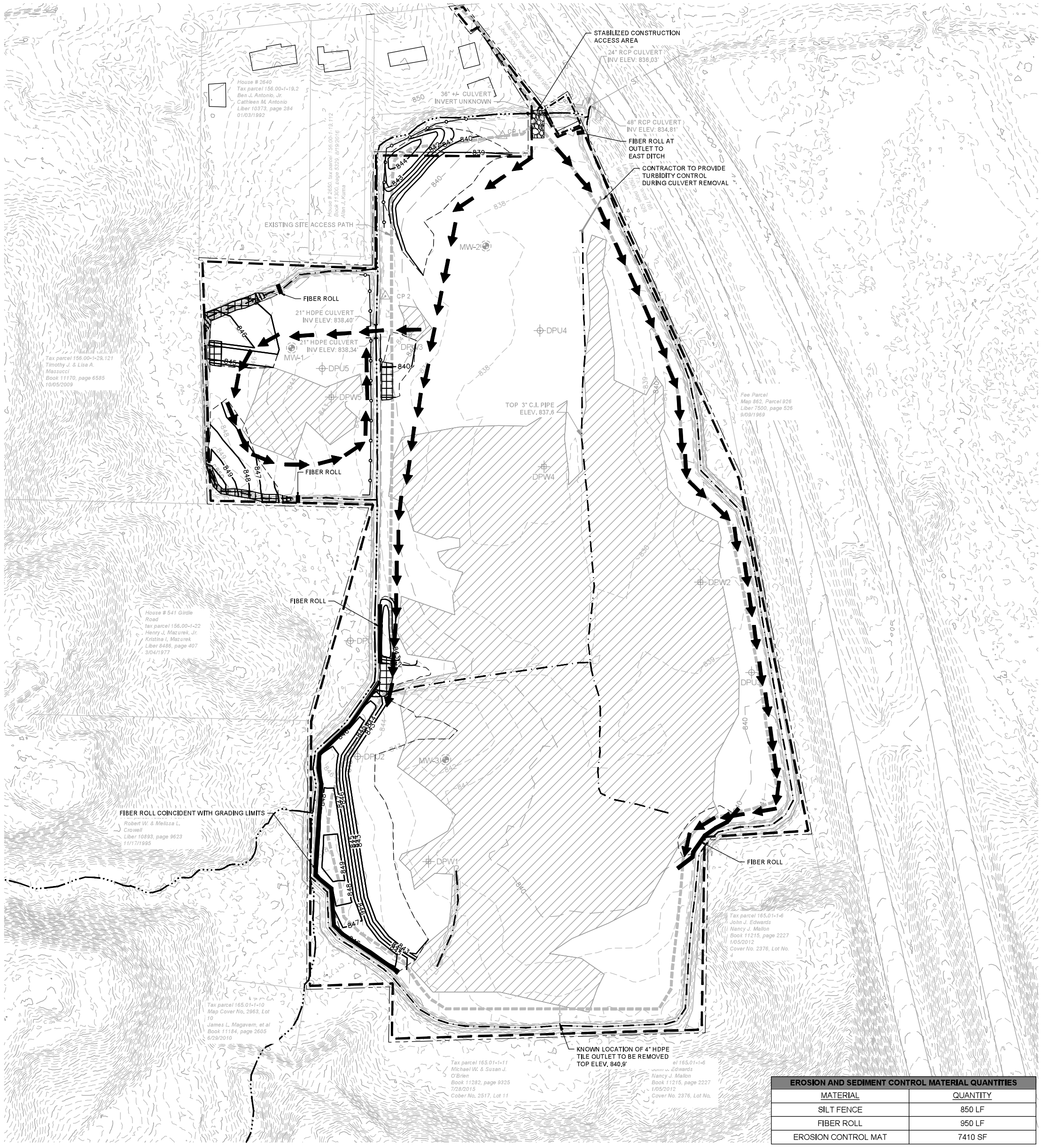

LEGEND

- EXISTING GRADE MAJOR CONTOUR (5' INTERVAL)
- EXISTING GRADE MINOR CONTOUR (1' INTERVAL)
- EDGE OF PAVEMENT
- EXISTING STORM LINE
- PROPERTY LINE
- ADJACENT PROPERTY PARCELS
- GRADING LIMITS
- EXCLUSION AREA
- CONSERVATION EASEMENT BOUNDARY (COINCEDENT WITH PROPERTY LINE EXCEPT AT EXCLUSION AREA)
- EXISTING SITE ACCESS PATH
- EXISTING CULVERT
- EXISTING STREAM CENTERLINE
- EXISTING DITCH
- PROPOSED FIBER ROLL (SEE DETAIL 2 ON DRAWING 10)
- PROPOSED FINAL GRADE CONTOUR (1' INTERVAL)
- EXISTING MONITORING WELL
- UPLAND DATAPOINT
- WETLAND DELINEATION DATAPOINT
- EXISTING BUILDING
- PROPOSED SILT FENCE (SEE DETAIL 1 ON DRAWING 10)
- PROPOSED ACCESS ROUTE
- PROPOSED STABILIZED CONSTRUCTION ACCESS (SEE DETAIL 3 ON DRAWING 10)
- EXISTING DELINEATED WETLAND
- EROSION CONTROL MAT (UPSTREAM LEADING EDGE OF EROSION CONTROL MATS SHALL BE STAPLED AT NO GREATER THAN 6" SPACING)

NOTES:

1. ANY AREAS DISTURBED BY THE CONTRACTOR THAT ARE NOT DENOTED ON THE PLANS (SUCH AS FOR STAGING OR ACCESS) SHALL BE LOOSENED TO A DEPTH OF AT LEAST 6 INCHES AND STABILIZED WITH SEED AND MULCH AT END OF USE, AT NO ADDITIONAL COST.
2. SILT FENCE MAY BE UTILIZED IN LIEU OF FIBER ROLL FOR TEMPORARY STOCKPILE AND BORROW AREAS.
3. CONTRACTOR SHOULD AVOID HEAVY EQUIPMENT TRAVEL WITHIN DELINEATED WETLAND AREAS WHENEVER POSSIBLE, UNLESS SPECIFICALLY REQUIRED FOR PROPOSED ACTIVITIES (E.G., HEAVY DISKING, REGRADING, PLANTING).
4. CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING WITHIN EXISTING DITCHES IN SOIL PLUG AREAS AS NEEDED. DEWATERING SHALL BE CONDUCTED IN ACCORDANCE WITH NEW YORK STATE EROSION AND SEDIMENT CONTROL STANDARDS.

GRAPHIC SCALE

100 0 50 100 200 400

1 inch = 100 feet

EROSION AND SEDIMENT CONTROL MATERIAL QUANTITIES	
MATERIAL	QUANTITY
SILT FENCE	850 LF
FIBER ROLL	950 LF
EROSION CONTROL MAT	7410 SF

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SIGNED: 6/23/2021

FOR PERMIT

Professional Engineer's Name: THOMAS STEINER
Professional Engineer's No.: 083972 State: NY

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EROSION AND SEDIMENT CONTROL PLAN

BLOOD ROAD COMPENSATORY MITIGATION PROJECT
TOWN OF EAST AURORA, ERIE CO., NEW YORK

Revision	Revisions	Date	By
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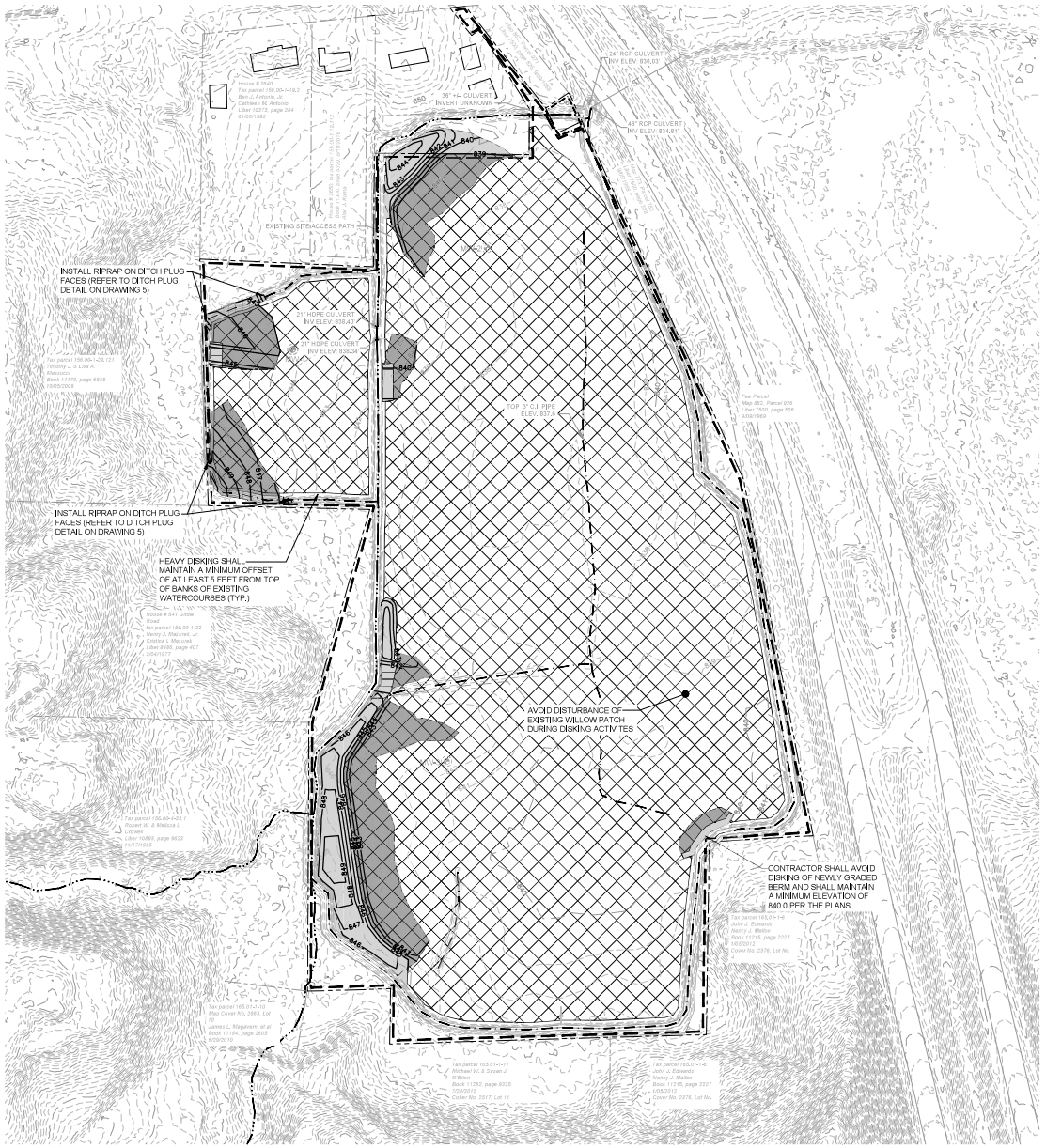

LEGEND

- 840 — EXISTING GRADE MAJOR CONTOUR (5' INTERVAL)
- 842 — EXISTING GRADE MINOR CONTOUR (1' INTERVAL)
- EDGE OF PAVEMENT
- ST — EXISTING STORM LINE
- PROPERTY LINE
- ADJACENT PROPERTY PARCELS
- GRADING LIMITS
- EXCLUSION AREA
- CONSERVATION EASEMENT BOUNDARY (COINCEDENT WITH PROPERTY LINE EXCEPT AT EXCLUSION AREA)
- EXISTING CULVERT
- EXISTING STREAM CENTERLINE
- EXISTING DITCH
- 848 — PROPOSED FINAL GRADE CONTOUR (1' INTERVAL)
- MW-1 — EXISTING MONITORING WELL
- EXISTING BUILDING
- HEAVY DISKING (SEE NOTE 3)
- STANDARD UPLAND SEED MIX
- EROSION CONTROL MAT (UPSTREAM LEADING EDGE OF EROSION CONTROL MATS SHALL BE STAPLED AT NO GREATER THAN 6" SPACING)
- TEMPORARY SEED MIX

SEEDING SUMMARY

SEED MIX	SEEDING DATE	SEEDING RATE	FERTILIZER	MULCH	AREA FOR SEEDING
Standard Upland Seed Mix	March 1 to November 1	45 lbs / acre	1.0 lbs/ 1000 FT^2	2 tons/acre Straw	1.14
Temporary Seed Mix (Annual Rye Grass)	March 1 - Oct 1	30 lbs / acre	NA	NA	2.00
Winter Temporary Seed Mix (Winter Rye, Aka Cereal Rye)	Oct 1-Nov 1	100 lbs / acre	NA	NA	

NOTES:

1. ANY AREAS DISTURBED BY THE CONTRACTOR THAT ARE NOT DEPICTED ON THE PLANS (SUCH AS FOR STAGING OR ACCESS) SHALL BE LOOSENED TO A DEPTH OF AT LEAST 6 INCHES AND STABILIZED WITH SEED AND MULCH AT END OF USE, AT NO ADDITIONAL COST.
2. WETLAND PLANTING AREAS SHALL BE PREPARED BY THE CONTRACTOR PRIOR TO SEEDING (BY OTHERS). PREPARATION WILL INCLUDE CLEARING (I.E. MOWING) AND HEAVY DISKING TO THE LIMITS INDICATED ON THE PLAN, EXCEPT AREAS WITHIN THE PROTECTIVE ROOT ZONE (I.E. CANOPY) OF EXISTING TREES. WITHIN 5-FT OF THE TOP OF EXISTING DITCH BANK, OR WHERE SOIL CONDITIONS PROHIBIT OPERATION OF DISKING EQUIPMENT (I.E. WET CONDITIONS) AS DETERMINED BY THE ENGINEER, NO EARTH DISTURBANCE SHALL OCCUR WITHIN THE EXISTING STREAM OR PERIMETER DITCHES EXCEPT FOR THAT REQUIRED FOR DITCH PLUG CONSTRUCTION AND STABILIZATION. STANDARD SEED MIX AREAS OUTSIDE OF DISKING LIMITS SHOWN SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 2-4 INCHES PRIOR TO SEEDING. THE COST OF SURFACE PREPARATION (MOWING/DISKING/SCARIFICATION) SHALL BE INCLUDED IN THE SEEDING AND MULCHING BID ITEM.
3. HEAVY DISKING SHALL BE DONE SUCH THAT A MINIMUM OF 6 INCHES OF SURFACE SOIL SHALL BE IN A LOOSE CONDITION. A MINIMUM OF TWO PASSES (PERPENDICULAR TO EACH OTHER, WITH THE LAST PASS RUNNING PARALLEL TO THE CONTROLS) WITH A CHISEL PLOW, HEAVY OFFSET DISK, OR OTHER APPROVED TILLAGE EQUIPMENT IS REQUIRED. ADDITIONAL PASSES MAY BE NECESSARY TO ACHIEVE THE DESIRED SURFACE ROUGHNESS, AFTER SEEDING, NO EQUIPMENT WILL BE ALLOWED TO ACCESS THE WETLAND AREAS FOR PLANTINGS OR OTHER ACTIVITIES, ANY EQUIPMENT MOVEMENT OVER SEEDED AREAS SHOULD BE MINIMIZED TO THE EXTENT PRACTICABLE. MULCH WILL NOT BE REQUIRED FOR AREAS RECEIVING ONLY DISKING UNLESS ORDERED BY THE ENGINEER. REFER TO CONSTRUCTION NOTES ON SHEET 2.
4. WHERE HEAVY DISKING AND STANDARD SEED MIXES OVERLAP, CONTRACTOR SHALL COMPLETE DISKING ACTIVITIES PRIOR TO SEEDING.
5. TEMPORARY SEEDING SHALL BE PROVIDED FOR ALL GRADING AREAS THAT WILL NOT RECEIVE STANDARD UPLAND SEED, AS DEPICTED ON THIS PLAN, AND/OR AS DIRECTED BY THE FIELD ENGINEER.
6. STANDARD UPLAND SEED MIX SHALL CONSIST OF APPROXIMATELY 45% CREEPING RED FESCUE, 22% PERENNIAL RYEGRASS, 11% ANNUAL RYEGRASS, 4% REDTOP, AND 18% BIRDSFOOT TREFOIL. CONTRACTOR SHALL SUBMIT ACTUAL SEED MIX TO BE UTILIZED TO DU FOR APPROVAL PRIOR TO CONSTRUCTION.

GRAPHIC SCALE

100 0 50 100 200 400

1 inch = 100 feet

SIGNED: 6/23/2021

FOR PERMIT

Professional Engineer's Name: THOMAS STEINER
Professional Engineer's No.: 083972
State: NY

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SITE RESTORATION PLAN
BLOOD ROAD COMPENSATORY MITIGATION PROJECT
TOWN OF EAST AURORA, ERIE CO., NEW YORK

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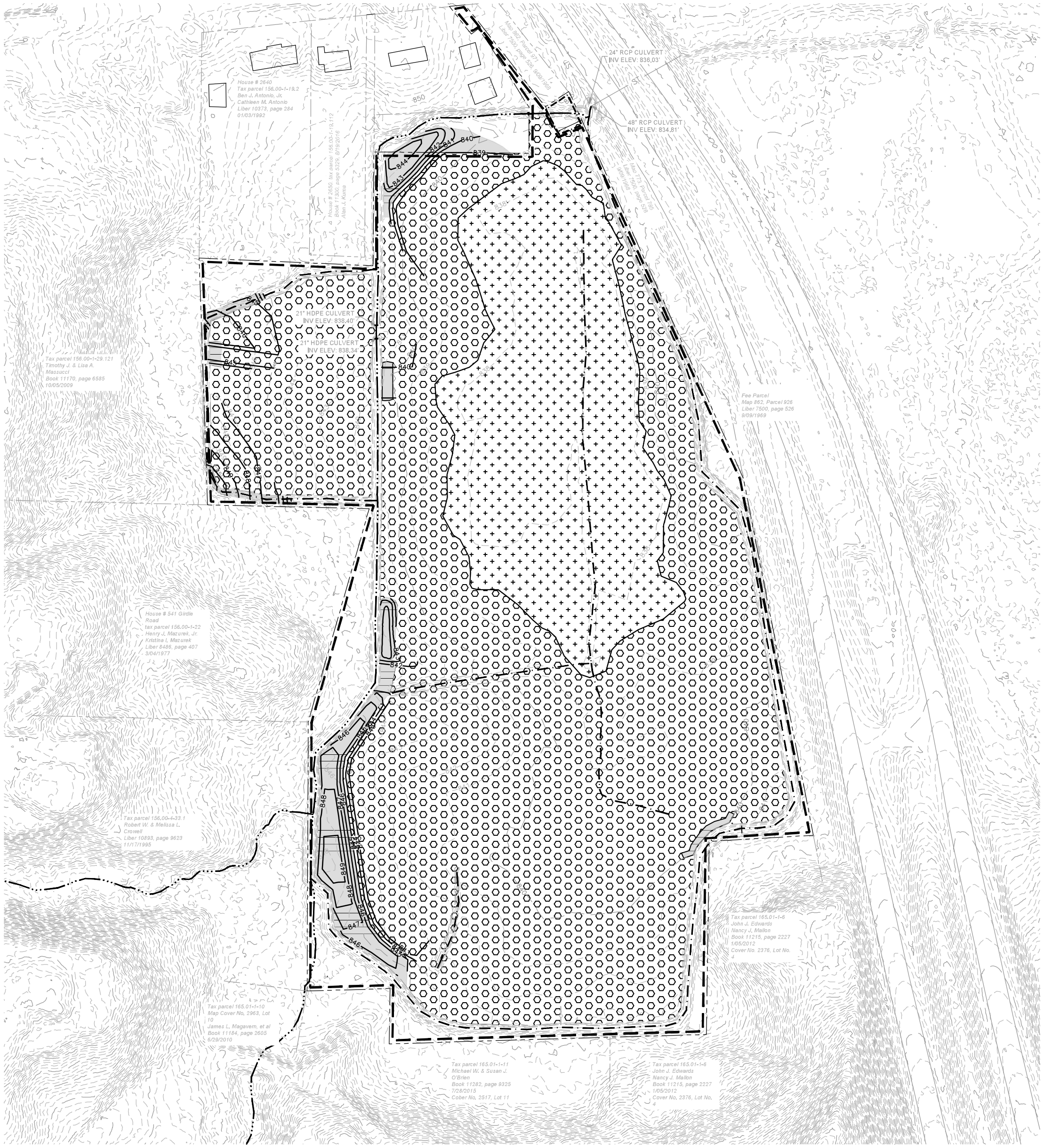

LEGEND

840	EXISTING GRADE MAJOR CONTOUR (5' INTERVAL)
842	EXISTING GRADE MINOR CONTOUR (1' INTERVAL)
	EDGE OF PAVEMENT
ST	EXISTING STORM LINE
	PROPERTY LINE
	ADJACENT PROPERTY PARCELS
	EXCLUSION AREA
	CONSERVATION EASEMENT BOUNDARY (COINCEDENT WITH PROPERTY LINE EXCEPT AT EXCLUSION AREA)
	EXISTING STREAM CENTERLINE
	EXISTING DITCH CENTERLINE
	EXISTING CULVERT
	EXISTING BUILDING
000	PROPOSED FINAL GRADE CONTOUR (1' INTERVAL)
	PEM WETLAND SEED MIX
	PFO PLANTINGS AND WETLAND SEED MIX
	STANDARD UPLAND SEED MIX
	UPLAND BUFFER PLANTINGS

NOTES: SEEDING PEM, PFO, AND UPLAND BUFFER

1. DUCKS UNLIMITED WILL PROVIDE AND APPLY THE WETLAND SEED MIX (MATERIAL SEED) FOR THE PEM, AND PFO AREAS TO BE SEEDED. THE APPLICATION RATE IS 15-20 LB/AC.
2. REFER TO PLANTING NOTES AND DETAILS DRAWING FOR ADDITIONAL INFORMATION.
3. TEMPORARY SEED MIXES TO BE APPLIED AS INDICATED ON THE RESTORATION PLAN OR AS DIRECTED BY THE DU ENGINEER.
4. EROSION CONTROL MATTING SHALL BE CUT AS NECESSARY TO FACILITATE INSTALLATION OF PLANTINGS WHERE NEEDED.

SEEDING/PLANTING AREA	ACREAGE
PEM WETLAND SEED MIX	6.05
PFO PLANTINGS AND WETLAND SEED MIX	17.56
UPLAND BUFFER PLANTINGS	0.90
STANDARD UPLAND SEED MIX	1.14

GRAPHIC SCALE

100 0 50 100 200 400

1 inch = 100 feet

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PLANTING PLAN

BLOOD ROAD COMPENSATORY MITIGATION PROJECT

TOWN OF EAST AURORA, ERIE CO., NEW YORK

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STATE OF NEW YORK · THOMAS A. STEINER · 083972 · LICENSED PROFESSIONAL ENGINEER

Professional Engineer's Name: THOMAS STEINER
Professional Engineer's No.: 083972 State: NY

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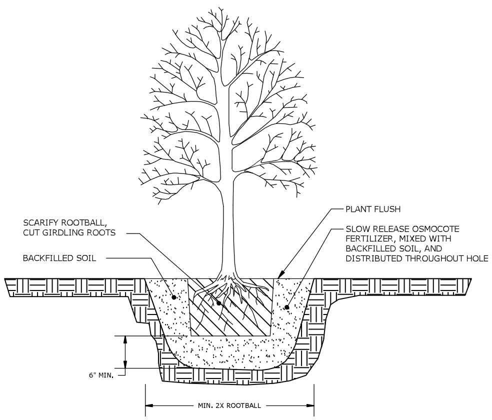
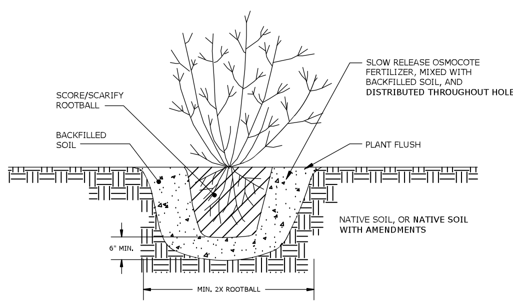
NOTES: SEEDING PEM, PFO, AND UPLAND BUFFER

1. WETLAND PLANTING AND RESTORATION AREAS SHALL BE PREPARED PRIOR TO SEEDING. PREPARATION WILL INCLUDE CLEARING (I.E. MOWING) AND HEAVY DISKING OF ALL WETLAND AREAS IDENTIFIED ON THE PLANTING PLAN EXCEPT AREAS INDICATED ON THE RESTORATION PLAN.
2. THE SEED APPLICATION RATE IS INDICATED IN THE TABLE TO THE RIGHT. THE SEED MIX MAY BE MIXED WITH SAWDUST OR OTHER INERT FILLER APPROVED BY THE ENGINEER FOR EASE OF APPLICATION. WETLAND SEEDING SHALL BE COMPLETED BETWEEN THE DATES OF MARCH 1 AND NOVEMBER 1.



TREE PLANTING DETAIL



SHRUB PLANTING DETAIL

TREE AND SHRUB PLANTING DETAILS (1)

NOT TO SCALE

NOTES:

1. TREE/SHRUB HOLE DIMENSIONS WILL BE DUG BASED ON ROOT BALL SIZE. THE TREE/SHRUB HOLE SHALL BE A MINIMUM OF 2 TIMES THE DIAMETER AND 1.5 TIMES THE DEPTH OF THE ROOT BALL.
2. BARE ROOT PLANTING SHALL ALSO BE PERFORMED FOR WOODY PLANTINGS IN PFO AND UPLAND BUFFER AREAS.

SEED MIXES/ TREE PLANTINGS

Target Area	Common Name	Scientific Name	Wetland Indicator Status	Percent Composition By Weight/ Stems per Acre	Propagule Type	Quantity/Acre
All Wetland Areas	fox sedge	*Carex vulpinoidea*	OBL	25	seed mix	20 lbs seed mixture/acre in PEM areas
	virginia wild rye	*Elymus virginicus*	FACW	15		
	shallow sedge	*Carex lurida*	OBL	10		
	mannagrass	*Glyceria canadensis*	OBL	5		
	bluejoint grass	*Calamagrostis canadensis*	OBL	5		
	broom sedge	*Carex scoparia*	FACW	5		
	hop sedge	*Carex lupulina*	OBL	5		
	soft rush	*Juncus effusus*	OBL	4		
	spotted Joe pye weed	*Eutrochium maculatum*	OBL	4		
	blue vervain	*Verbena hastata*	FACW	3		
	American bur-reed	*Sparganium americanum*	OBL	2		
	Eastern bur-reed	*Sparganium americanum*	OBL	2		
	nodding beggartick	*Bidens cernua*	OBL	2		
	woolgrass	*Scirpus cyperinus*	OBL	2		15 lbs seed mixture/acre in PFO areas
	swamp milkweed	*Asclepias incarnata*	OBL	2		
	boneset	*Eupatorium perfoliatum*	FACW	2		
	green bulrush	*Scirpus atrovirens*	OBL	2		
	New England aster	*Symphyotrichum novae-angliae*	FACW	2		
	New York ironweed	*Vernonia noveboracensis*	FACW	1		
	soft stem bulrush	*Schoenoplectus tabernaemontani*	OBL	2		
PFO	red maple	*Acer rubrum*	FAC	125	bare root/potted	sum to ≥ 500 stems / acre
	silver maple	*Acer saccharinum*	FACW	25		
	swamp white oak	*Quercus bicolor*	FACW	50		
	yellow birch	*Betula alleghaniensis*	FAC	50		
	American elm	*Ulmus americana*	FACW	50		
	American hornbeam	*Carpinus caroliniana*	FAC	50		
	common winterberry	*Ilex verticillata*	FACW	50		
	sweetgale	*Myrica gale*	OBL	25		
	silky dogwood	*Cornus amomum*	FACW	25		
	northern spicebush	*Lindera benzoin*	FACW	25		
	southern arrowwood	*Viburnum dentatum*	FAC	25		
Upland Buffer	red maple	*Acer rubrum*	FAC	72	bare root/potted	sum to ≥ 500 stems/ acre
	American sycamore	*Platanus occidentalis*	FACW	72		
	striped maple	*Acer pensylvanicum*	FACU	72		
	eastern white pine	*Pinus strobus*	FACU	71		
	bitternut hickory	*Carya cordiformis*	FAC	71		
	yellow poplar	*Liriodendron tulipifera*	FACU	71		
	American basswood	*Tilia americana*	FACU	71		
Standard Upland Seed Mix	creeping red fescue	*Festuca rubra*	FACU	45	seed mix	45 lbs seed mixture/acre
	perennial ryegrass	*Lolium perenne*	FACU	22		
	annual ryegrass	*Lolium multiflorum*	FACU	11		
	redtop	*Agrostis gigantea*	FACW	4		
	birdsfoot trefoil	*Lotus corniculatus*	FACU	18		

NOTE:

1. PLANTINGS FOR PFO AND UPLAND BUFFER WILL BE AT LEAST 18 INCHES IN HEIGHT. SEEDLINGS WILL BE A MIXTURE OF BARE ROOT PLANTS (75%) AND POTTED (25%).

SIGNED: 6/23/2021

FOR PERMIT

ARCADIS — Design & Consultancy for natural and built assets

ARCADIS OF NEW YORK, INC.

NO ALTERATIONS PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW

Professional Engineer's Name: THOMAS STEINER
Professional Engineer's No.: 083972 | State: NY

ARCADIS Project No. 30053992

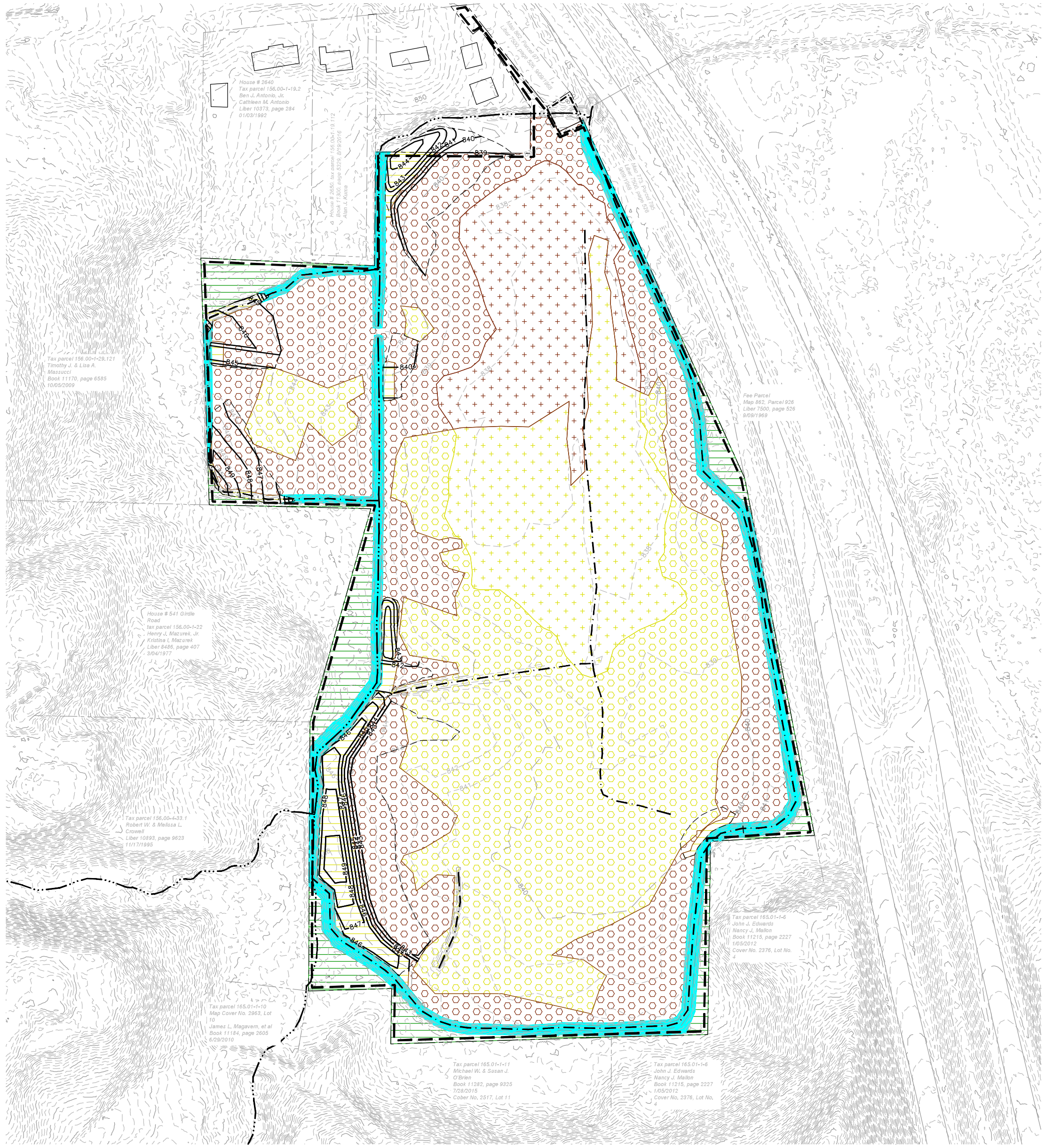
ARCADIS
One Lincoln Center
110 West Fayette Street, Suite 300
Syracuse NY 13202
Tel. 315.446.9120

GREAT LAKES/ATLANTIC REGIONAL OFFICE
7322 NEWMAN BOULEVARD, BUILDING 1
DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org
DUCKS UNLIMITED

PLANTING NOTES AND DETAILS
BLOOD ROAD COMPENSATORY MITIGATION PROJECT
TOWN OF EAST AURORA, ERIE CO., NEW YORK

Revision	Revisions	Date	By
0	ISSUED FOR PERMIT REVIEW	6/22/2021	ERT

CAD FILE:
DESIGNED BY: PTO
DRAWN BY: KLS
SURVEYED BY: GB & JP
BIOLOGIST: JF (DU)
DATE: 6-22-2021
PROJECT NUMBER: US-NY-236-2
GLARO-NY2-77-13



LEGEND

CREDIT GENERATION

- PEM REHABILITATION AREA — AREA: 3.53 AC
- PEM REESTABLISHMENT AREA — AREA: 2.52 AC
- PFO REHABILITATION AREA — AREA: 8.98 AC
- PFO REESTABLISHMENT AREA — AREA: 8.58 AC
- UPLAND BUFFER PRESERVATION AREA — AREA: 1.70 AC
- UPLAND BUFFER REHABILITATION AREA — AREA: 1.00 AC
- OPEN WATER — AREA: 2.11 AC

- EXISTING GRADE MAJOR CONTOUR (5' INTERVAL)
- EXISTING GRADE MINOR CONTOUR (1' INTERVAL)
- EDGE OF PAVEMENT
- EXISTING STORM LINE
- PROPERTY LINE
- ADJACENT PROPERTY PARCELS
- EXCLUSION AREA
- CONSERVATION EASEMENT BOUNDARY (COINCEDENT WITH PROPERTY LINE EXCEPT AT EXCLUSION AREA)
- EXISTING STREAM CENTERLINE
- EXISTING DITCH CENTERLINE
- GRADING LIMITS
- EXISTING BUILDING

GRAPHIC SCALE

100 0 50 100 200 400

1 inch = 100 feet

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DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org
DUCKS UNLIMITED

CREDIT GENERATION PLAN

BLOOD ROAD COMPENSATORY MITIGATION PROJECT

TOWN OF EAST AURORA, ERIE CO., NEW YORK

Revision	Revisions	Date	By
0	ISSUED FOR PERMIT REVIEW	6/22/2021	ERT

CAD FILE:

DESIGNED BY: PTO
DRAWN BY: KLS
SURVEYED BY: GB & JP
BIOLOGIST: JF (DU)
DATE: 6-22-2021
PROJECT NUMBER: US-NY-236-2
GLARO-NY2-77-14

SIGNED: 6/23/2021

FOR PERMIT

STATE OF NEW YORK · THOMAS A. STEINER · 083972 · LICENSED PROFESSIONAL ENGINEER

ARCADIS Design & Consultancy for natural and built assets

ARCADIS OF NEW YORK, INC.

NO ALTERATIONS PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW

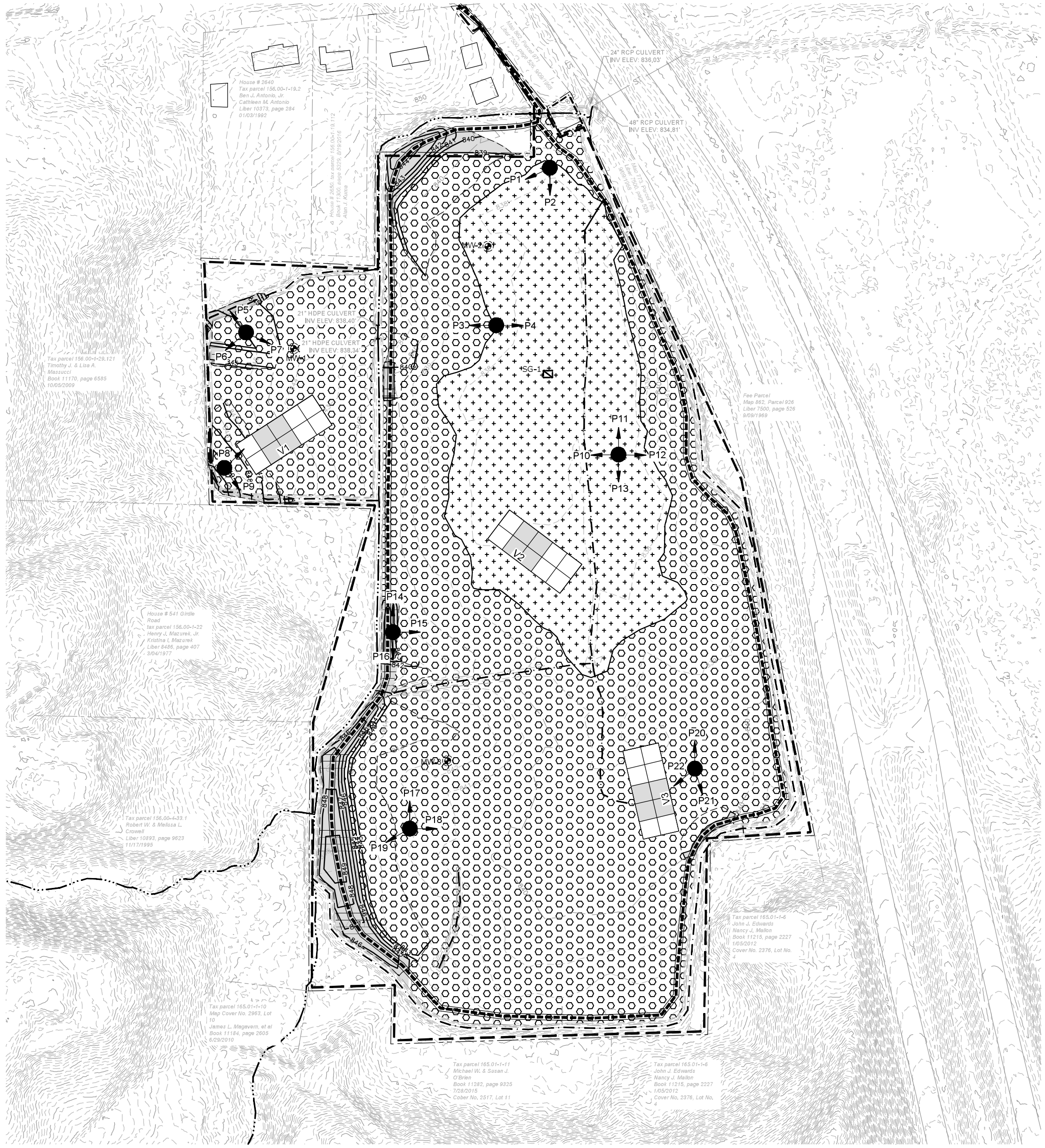
Professional Engineer's Name: THOMAS STEINER
Professional Engineer's No.: 083972 — State: NY

ARCADIS Project No. 30053992

ARCADIS
One Lincoln Center
110 West Fayette Street, Suite 300
Syracuse NY 13202
Tel. 315.446.9120

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

C:\Users\ETaetsch\BIM 360\Arcadis\AUS-DUCKS UNLIMITED-BLOOD ROAD-EAST AURORA New York\Project Files\2021\01-In Progress\01-DWG\BL-DR14-CreditGen-1.dwg, 6/21/2021 5:21 PM, Taetsch, Elise, Credit Generation Plan, None



LEGEND

- EXISTING GRADE MAJOR CONTOUR (5' INTERVAL)
- EXISTING GRADE MINOR CONTOUR (1' INTERVAL)
- EDGE OF PAVEMENT
- EXISTING STORM LINE
- PROPERTY LINE
- ADJACENT PROPERTY PARCELS
- EXCLUSION AREA
- CONSERVATION EASEMENT BOUNDARY (COINCEDENT WITH PROPERTY LINE EXCEPT AT EXCLUSION AREA)
- EXISTING STREAM CENTERLINE
- PROPOSED MONITORING ACCESS PATH
- EXISTING DITCH CENTERLINE
- EXISTING BUILDING
- PROPOSED FINAL GRADE CONTOUR (1' INTERVAL)
- EXISTING CULVERT
- MW-1 EXISTING MONITORING WELL
- SG-1 STAFF GAUGE
- P1 PHOTO POINT LOCATION
- MONITORING ACCESS PATH
- PEM
- PFO
- STANDARD UPLAND SEED MIX
- UPLAND BUFFER

TYPICAL VIBI MONITORING PLOT
SCALE : 1" = 40m

50M, 20M, 10M

100 SQUARE METER GRID FOR VEGETATION SAMPLING

SHADED AREAS REPRESENT INTENSIVE SAMPLING AREAS

GRAPHIC SCALE

100 0 50 100 200 400

1 inch = 100 feet

GREAT LAKES/ATLANTIC REGIONAL OFFICE

7322 NEWMAN BOULEVARD, BUILDING 1
DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org

DUCKS UNLIMITED

MONITORING PLAN

BLOOD ROAD COMPENSATORY MITIGATION PROJECT

TOWN OF EAST AURORA, ERIE CO., NEW YORK

Revision	Revisions	Date	By
0	ISSUED FOR PERMIT REVIEW	6/22/2021	ERT

CAD FILE:

DESIGNED BY: PTO
DRAWN BY: KLS
SURVEYED BY: GB & JP
BIOLOGIST: JF (DU)

DATE: 6-22-2021

PROJECT NUMBER: US-NY-236-2

GLARO-NY2-77-15

SIGNED: 6/23/2021

FOR PERMIT

STATE OF NEW YORK · THOMAS A. STEINER · 083972 · LICENSED PROFESSIONAL ENGINEER

ARCADIS Design & Consultancy for natural and built assets

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Professional Engineer's Name: THOMAS STEINER
Professional Engineer's No.: 083972
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NOTICE: Construction site safety is the sole responsibility of the contractor. Ducks Unlimited, Inc. shall not assume any responsibility for the safety of the work performed, persons engaged in the work, nearby structures, or of other persons on-site.

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ERIK KULLESEID
Commissioner

August 24, 2020

John Fraser
Wetland Mitigation Specialist
Ducks Unlimited, Inc.
159 Dwight Park Circle
Suite 205
Syracuse, NY 13209

Re: USACE
Blood Road Wetland Mitigation Project
South of 2670 West Blood Rd, Elma, Erie County, NY
20PR05096
LRB-2010-00673 (ILFP)

Dear John Fraser:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based upon this review, it is the opinion of the New York SHPO that no historic properties, including archaeological and/or historic resources, will be affected by this undertaking.

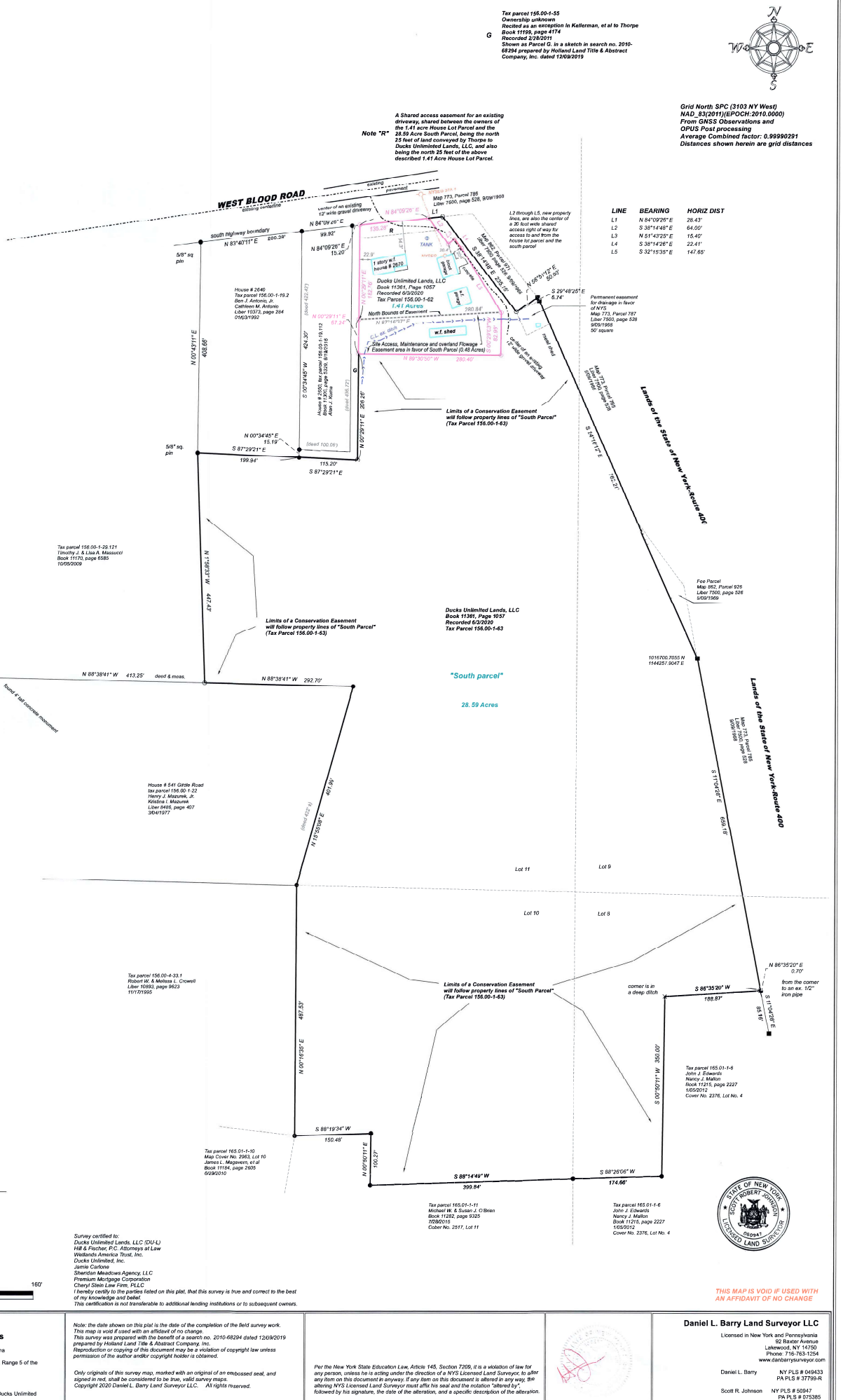
If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

R. Daniel Mackay

Deputy State Historic Preservation Officer
Division for Historic Preservation

Appendix D. Conservation Easement Boundary



Plat of a survey for

Ducks Unlimited Lands

2670 West Blood Road-Town of Elma
County of Erie, State of New York
Part of Lots 8, 9, 10, & 11, Town 10, Range 5 of the Buffalo Creek Reservation

Job No. 4848-19
Dated: January 28, 2020
Revised: 10/14/2020; Updated for Ducks Unlimited

Note: the date shown on this plat is the date of the completion of the field survey work.
This map is void if used with an affidavit of no change.
This survey was prepared with the benefit of a search no. 2010-68294 dated 12/09/2019 prepared by Holland Land Title & Abstract Company, Inc.
Reproduction or copying of this document may be a violation of copyright law unless permission of the author and/or copyright holder is obtained.

Only originals of this survey map, marked with an original of an embossed seal, and signed in red, shall be considered to be true, valid survey maps.

Per the New York State Education Law, Article 145, Section 7209, it is a violation of law for any person, unless he is acting under the direction of a NYS Licensed Land Surveyor, to alter any item on this document in anyway. If any item on this document is altered in any way, the altering NYS Licensed Land Surveyor must affix his seal and the notation "altered by", followed by his signature, the date of the alteration, and a specific description of the alteration.

Daniel L. Barry Land Surveyor LLC
Licensed in New York and Pennsylvania
92 Baxter Avenue
Lakewood, NY 14750
Phone: 716-763-1254
www.danberrysurveyor.com

Daniel L. Barry NY PLS # 049433
PA PLS # 37799-R

Scott R. Johnson NY PLS # 50947
PA PLS # 075385

Traverse PC

Appendix E. Threatened and Endangered Species Review

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
http://www.fws.gov/northeast/nyfo/es/section7.htm

In Reply Refer To: January 25, 2021
Consultation Code: 05E1NY00-2021-SLI-1185
Event Code: 05E1NY00-2021-E-03819
Project Name: Blood Road Muck In-Lieu Fee Wetland Mitigation Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: http://www.fws.gov/northeast/nyfo/es/section7.htm

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the Services wind

energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the ESA. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

Project Summary

Consultation Code: 05E1NY00-2021-SLI-1185
Event Code: 05E1NY00-2021-E-03819
Project Name: Blood Road Muck In-Lieu Fee Wetland Mitigation Project
Project Type: LAND - RESTORATION / ENHANCEMENT
Project Description: The project site is a former muck field on West Blood Road in the Town of Elma, Erie County, NY. Wetlands will be restored and enhanced on the site to mitigate for wetland impacts permitted by the US Army Corps of Engineers. Restoration activities include tile drain disruption, shallow grading, and plugging of a secondary drainage ditch. After earthwork is complete, the site will be planted to a mix native wetland emergent and woody species.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.789999699999996,-78.59963126123634,14z

Counties: Erie County, New York

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9045

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix G. Default and Closure Provisions

Default

If the IRT determines that the Sponsor is in material default of any provision of the Instrument or an approved mitigation plan, the IRT, acting through the USACE, shall provide notice of the specific circumstances or actions which constitute a default(s) in writing to the Sponsor and providing a reasonable period of time to cure the default. If the Sponsor does not remedy the default or provide a remedial action plan acceptable to the IRT in a timely manner, the USACE may take appropriate action. Such actions may include, but are not limited to, suspending credit sales, decreasing available credits, approving the use of funds at an alternate location, taking enforcement actions, calling upon financial assurances, or terminating the Instrument. In the event that the DU-NY-ILF program is terminated, DU is responsible for fulfilling any remaining obligations for credits sold. Default closure procedures for either the entire ILF Instrument or a specific service area may proceed within thirty (30) days upon written notification by either the Buffalo and New York District Engineers or Ducks Unlimited. In the event that either the ILF Instrument or a specific service area is closed, DU is responsible for fulfilling any remaining obligations for credits sold prior to closure unless the obligation is specifically transferred to another entity as agreed to by the District Engineer and DU. DU shall be reimbursed from the ILF program account for all costs incurred in fulfilling the remaining obligations. The Corps may review and approve use of these funds to purchase credits from another source of third-party mitigation or disburse funds to a governmental or non-profit natural resource management entity willing to undertake further compensation activities. The Corps itself cannot accept directly, retain, or draw upon those funds in the event of a default.

Instrument Closure Provisions

Any funds remaining in the program account after the mitigation obligations are satisfied must be used for the restoration and/or preservation of aquatic resources and associated upland buffers within the service area in which the funds reside unless otherwise approved by the District Engineer.

The final release of credits will take place once the IRT concurs that all the performance standards and obligations have been met and the final wetland delineation has been verified. The final number of mitigation credits will be based upon attainment of performance standards and a wetlands delineation completed by DU or its affiliates and verified by USACE following the final monitoring year. Final closure of the ILF Site will take place after all approved mitigation credits have been sold. DU shall continue to comply with the sale reporting requirements of the Instrument Amendment until such time as all credits have been sold. Should DU request the ILF Site be formally closed prior to sale of all released credits, the remaining unsold credits will be forfeited by the site and no further sales may occur.

Appendix H. Site Access Management and Overland Flowage Easement

Box 27
(KC)

SITE ACCESS, MAINTENANCE, AND OVERLAND FLOWAGE EASEMENT
Blood Rd Muck Compensatory Mitigation Site
US-NY-236-8

DUCKS UNLIMITED, INC. **JAMIE J. CARLONE**

THIS SITE ACCESS, MAINTENANCE, AND OVERLAND FLOWAGE EASEMENT ("**Agreement**") is made and entered into on the date last executed below by and between **DUCKS UNLIMITED, INC.,** (who with its heirs, successors, and assigns are collectively referred to herein as "**DU**") a nonprofit corporation organized under the laws of the District of Columbia, with an address of One Waterfowl Way, Memphis, Tennessee 38120, and **JAMIE J. CARLONE** (who with his heirs, successors, and assigns are collectively referred to herein as "**House Lot Owner**"), with an address of 2670 West Blood Road, East Aurora, New York 14052. DU and House Lot Owner collectively shall be referred to as the "**Parties**."

WHEREAS, House Lot Owner owns a 1.41-acre parcel of land ("**House Lot Parcel**"), identified by the address 2670 West Blood Road, East Aurora, New York 14052, which land was conveyed to House Lot Owner by deed recorded in the Erie County Clerk's Office simultaneously herewith. The House Lot Parcel is more particularly described in **Exhibit A** and is identified as Tax Parcel 156.00-1-62 on the survey map attached as **Exhibit E**, which survey map is entitled "Plat of a survey for Ducks Unlimited Lands," dated January 28, 2020, bearing a revision date of October 14, 2020.

WHEREAS, Ducks Unlimited Lands, LLC, a Tennessee nonprofit limited liability company, with an address of One Waterfowl Way, Memphis, Tennessee 38120, whose sole owner is DU, owns the residual 28.59-acre parcel of land ("**South Parcel**"), being the remainder of the premises originally conveyed to Ducks Unlimited Lands, LLC, by deed recorded in the Erie County Clerk's Office, in Deed Book 11361 at Page 1057. The South Parcel is identified on the survey map attached as **Exhibit E** and is more particularly described in **Exhibit B.**

WHEREAS, in accordance with the Department of the Army In Lieu Fee Site/Program for the purpose of developing wetland mitigation credits, DU will construct a wetland mitigation project, the Blood Rd Muck Compensatory Mitigation Site ("**Site**"), on approximately Twenty-Nine and 7/100 (29.07) Acres consisting of the South Parcel as well as **48/100 (0.48) Acres** of the House Lot Parcel. This wetland mitigation project includes restoration and protection of natural resources. The referenced 0.48-acre tract of land ("**Easement Area**") is more particularly described in **Exhibit C** and depicted as the "**Site Access, Maintenance, And Overland Flowage Easement Area**" on the survey map attached as **Exhibit E**. The Easement Area includes the ditch depicted as the "C.L. ex. ditch" on the **Exhibit E** survey map ("**Ditch**").

WHEREAS, in conjunction with the transfer of the 1.41-acre House Lot Parcel to House Lot Owner, DU and House Lot Owner desire to enter into this Agreement to allow DU to manage the hydrology of the Easement Area, including increasing and decreasing surface water, and the vegetation within the Easement Area. Such management is necessary for the construction of the wetland mitigation project and for the management and protection of the wetland mitigation

12670 ELM
785-21

project and South Parcel. DU and House Lot Owner also desire to ensure that DU's activities do not cause an increase of surface water on the House Lot Parcel or other properties.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. **RESTRICTIONS ON HOUSE LOT OWNERS USE OF THE EASEMENT AREA.** Unless House Lot Owner obtains the prior written approval of DU, House Lot Owner shall not conduct or cause any of the following activities within the Easement Area:
   a. Anything which could (i) obstruct, impede, or otherwise alter or interfere with the flow of surface water over the Easement Area, including through the Ditch; (ii) increase or decrease surface water on the Easement Area or South Parcel; or (iii) interfere with DU's ability to maintain the Easement Area;
   b. Construction or placement of any structure, building, fence, road, trail, material, device, thing, or matter;
   c. Planting or removal of any trees, shrubs, brush, or other vegetation; however, House Lot Owner may mow the grass without DU approval;
   d. Placement of trash, yard waste, or other waste;
   e. Change of the grade, elevation, or contour of any part of the Easement Area;
   f. Conversion of the habitat type from a wetland state;
   g. Use of any motorized vehicles, including all-terrain vehicles, or heavy construction equipment, except in the case of emergency; or
   h. Use of any herbicides, pesticides, fertilizers, or other chemicals.

2. **DU'S RIGHTS IN AND TO THE EASEMENT AREA**. DU and its consultants, contractors, subcontractors, and other agents shall have the right, at DU's expense, to conduct the following activities within the Easement Area so long as such activities do not cause an increase of surface water on the House Lot Parcel:
   a. Improvement, repair, and maintenance of the Easement Area in whatever manner necessary to ensure the success of the wetland mitigation project, to provide adequate and proper drainage, and to protect public health, safety, and general welfare;
   b. Alteration and management of the hydrology of the Easement Area, including construction and placement of water control structures and increasing and decreasing surface water within the Easement Area;
   c. Keeping, preserving, and maintaining the Easement Area free from any obstructions that could obstruct, impede, or otherwise interfere with the normal flow of surface water over the Easement Area, including through the Ditch, or which could interfere with DU's ability to maintain the Easement Area;
   d. Removal of any unauthorized obstruction, impediment, structure, building, fence, road, trail, material, device, thing, or matter constructed or placed within the Easement Area;
   e. Removal of the structure identified as "w.f. shed" on the Exhibit E survey map;
   f. Planting, management, and removal of trees, shrubs, brush, and other vegetation;
   g. Removal of trash, yard waste, and other waste;

h. Management of invasive plant species;
i. Change of the grade, elevation, or contour of the Easement Area, including the Ditch;
j. Restoration of the habitat type to a wetland state, and prevention of the conversion of habitat type from a wetland state;
k. Prevention of unlawful trespassing;
l. Prevention of the use of all-terrain vehicles and other motorized vehicles;
m. Monitoring of the Easement Area, including but not limited to wetland delineations, wetland boundary surveys, and plant identification; and
n. Placement and maintenance of signs to identify the Easement Area as a wetland mitigation project or protected land and to provide warnings necessary to protect public safety. The number, size, and content of any such signs are subject to House Lot Owner's written approval, which approval shall not be unreasonably withheld.

DU, in its sole discretion, may use herbicides, pesticides, fertilizers, and heavy construction equipment to carry out its rights pursuant to this Agreement. House Lot Owner shall cooperate with DU to obtain any necessary permits, as determined by DU in its sole discretion.

3. **DU'S RIGHT OF ACCESS.** Pursuant to that Reciprocal Access and Maintenance Agreement recorded in the Erie County Clerk's Office simultaneously herewith, DU and its contractors, agents, officers, members, employees, invitees, licensees, and guests have the right to use the driveway, as described in Exhibit D, for ingress and egress to the Easement Area.

4. **LIMITATIONS ON DU'S ACCESS.** The easement, covenants, and rights granted hereby are expressly limited and restricted to the reasonably necessary use by DU, its consultants, contractors, subcontractors, and other agents in carrying out DU's rights pursuant to this Agreement. At such time as any such equipment or materials are no longer necessary to carry out such rights, DU shall promptly remove such equipment and facilities from the Easement Area.

5. **LIENS.** The Parties shall save and keep the Easement Area free from all mechanic's and materialmen's liens and all other liens or claims, legal or equitable. In the event any lien or claim is filed by any person claiming by, through, or under DU or House Lot Owner, such lien or claim shall be removed and discharged by defendant/respondent party within ten (10) days of defendant/respondent party's receipt of written notice of the filing thereof.

6. **WETLAND MITIGATION CREDITS.** House Lot Owner hereby relinquishes claim to ownership of wetland mitigation credits and to reimbursement from sale of wetland mitigation credits and provides exclusive right to DU to market and sell wetland mitigation credits developed by the wetland mitigation project.

7. **PARTIES' RELATIONSHIP.** This Agreement is entered into by the Parties solely to describe and define the Easement Area, provide access to the Easement Area for the purposes described herein, and to define the rights, obligations, and liabilities of the Parties associated therewith. Nothing contained in this Agreement shall be deemed or construed to make DU or its consultants, contractors, subcontractors, and agents the employee or agent of House Lot Owner, or to create any partnership, joint venture, or other association between the Parties hereto.

8. **AGREEMENT RUNS WITH THE LAND.** This Agreement shall be perpetual, permanent, and run with the land and is binding upon, and inures to the benefit of, the Parties and their heirs, executors, administrators, successors, and assigns. House Lot Owner agrees that this agreement shall be referenced and in any and all deeds or other instruments recorded or encumbering the House Lot Parcel. This Agreement and any amendments thereto shall be recorded in the land records of the County where the Easement Area is located.

9. **ASSIGNMENT BY DU.** DU may assign its rights and obligations under this Agreement by giving thirty (30) days' prior written notice to House Lot Owner pursuant to Section 22 (Notices) herein.

10. **ENTIRE AGREEMENT.** This Agreement constitutes the sole and complete agreement between the Parties and no representations or promises not included in these writings shall be binding upon any Party to this Agreement.

11. **AMENDMENTS.** No amendment, modification or attempt to supersede or cancel any terms or conditions hereof shall be effective unless such amendment, modification, or direction to supersede or cancel such term or conditions is in writing executed by both DU and House Lot Owner. Such agreements shall be recorded in the land records of the County where the Easement Area is located.

12. **EMINENT DOMAIN AND CONDEMNATION.** Whenever any interest in all or a portion of the Easement Area or Site is taken by involuntary conversion, such as an exercise of eminent domain, DU and House Lot Owner shall each take appropriate actions at the time of such taking to recover the full value of the taking and all incidental, consequential, and direct damages resulting from the taking. House Lot Owner shall be entitled to all damages related to the Easement Area. DU shall be entitled to all damages related to the Site and reduction in value of the Site, including the estimated value of credits on the Site. In addition, if, in DU's sole discretion, the taking substantially frustrates the purpose of this Agreement, then DU may terminate this Agreement upon thirty (30) days' written notice thereof to House Lot Owner, in which case both Parties shall be released from their obligations hereunder, and DU shall record a Notice of Termination in the land records of the County where the Easement Area is located.

13. **RESOLUTION OF DISPUTES.** DU and House Lot Owner shall promptly and in good faith attempt to resolve by direct negotiation any dispute arising out of or relating to this Agreement. If those negotiations are not successful, the Parties shall in good faith attempt to resolve the dispute through mediation. The Parties shall appoint a mutually acceptable person. If the Parties cannot agree on who should serve as

mediator, each Party shall submit to the other a list of three potential mediators acceptable to them. Each Party shall then strike two names from the list provided by the other. The two people remaining in the lists shall confer and jointly name a mediator. The mediation will be held no later than ninety (90) days after the dispute has arisen, and the costs of the mediation shall be shared equally by the Parties. Except as provided in Section 13.c. (DU's Remedies), no judicial action may be instituted by either Party until after such mediation has been held. If the mediation is not successful and a judicial action is instituted, the Parties shall not assert the defense of the statute of limitations or laches based upon the time devoted to attempting to resolve the dispute in accordance with this Section.

14. NOTICE OF BREACH, ENFORCEMENT, AND DU'S REMEDIES.

a. **NOTICE OF BREACH.** If DU determines that House Lot Owner is in violation of the terms of this Agreement or that a violation is threatened, DU shall give written notice to House Lot Owner of such violation and demand corrective action sufficient to cure the violation and, where the violation involves injury to the Easement Area or Site resulting from any use or activity inconsistent with DU's rights pursuant to this Agreement, to restore the portion of the Easement Area and Site so injured to the condition existing immediately prior to the violation complained of.

b. **ENFORCEMENT.** If House Lot Owner fails to cure the violation within thirty (30) days after receipt of notice thereof from DU, or under circumstances where the violation cannot reasonably be cured within a thirty (30) day period, fails to begin curing such violation within the thirty (30) day period and fails to continue diligently to cure such violation until finally cured, DU may bring an action at law or in equity in a court of competent jurisdiction to enforce the terms of this Agreement, to enjoin the violation, by temporary or permanent injunction, to recover any damages to which it may be entitled for violation of the terms of this Agreement or harm to the Easement Area or Site, including damages, costs, and attorney's fees, or to require the restoration of the Easement Area and Site to the condition that existed immediately prior to any such injury. Without limiting House Lot Owner's liability therefore, DU, in its sole discretion, may apply any damages recovered to the cost of undertaking any corrective action on the Easement Area or Site.

c. **DU'S REMEDIES.** DU has the right to enforce this Agreement by proceedings in law and in equity, including without limitation the right to require the restoration of the Easement Area and Site to a condition existing immediately prior to the violation complained of in compliance herewith. If DU, in its sole discretion, determines that circumstances require immediate action to prevent or mitigate significant damage to the Easement Area or Site, DU may pursue its remedies under this Section without prior notice to House Lot Owner or without waiting for the period provided for cure to expire. DU's rights under this Section apply equally in the event of either actual or threatened violations of the terms of this Agreement, and House Lot Owner agrees that DU's remedies at law for any violation of the terms of this Agreement are inadequate and that DU shall be

entitled to the injunctive relief described in this Section, both prohibitive and mandatory, in addition to such other relief to which DU may be entitled, including specific performance of the terms of this Agreement, without the necessity of proving either actual damages or the inadequacy of otherwise available legal remedies. DU's remedies described in this Section shall be cumulative and shall be in addition to, and not in limitation of, all remedies now or hereafter existing at law or in equity. Nothing herein shall be construed to entitle DU to institute any proceedings against House Lot Owner for any changes to the Easement Area or Site due to natural causes beyond House Lot Owner's control.

15. **WAIVER.** No waiver of the breach of any provision of this Agreement shall be construed to be a waiver of any subsequent breach of the same or of any other provision in this Agreement.

16. **ATTORNEY'S FEES AND COSTS.** If any action at law or in equity is instituted to enforce or interpret the terms of this Agreement, the prevailing Party shall be entitled to reasonable attorney's fees and costs of investigation, in addition to any other relief to which the Party may be entitled.

17. **INDEMNIFICATION.** Each Party shall indemnify, defend, and hold harmless the other and the other's officers, directors, and employees from and against those liabilities, damages, and costs arising out of third party claims to the extent caused by the willful misconduct, negligent act, error, or omission of the indemnifying Party or anyone for whom the indemnifying Party is legally responsible.

18. **SEVERABILITY.** If any term or covenant of this Agreement or the application thereof to any person or circumstance shall be invalid or unenforceable, the remainder of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

19. **CONTROLLING LAW.** This Agreement shall be governed by and construed in accordance with the laws of the state where the Easement Area is located without regard to laws governing choice of law outside the state.

20. **CONSTRUCTION.** Notwithstanding any general rule of construction to the contrary, the Parties agree that each Party had counsel or the opportunity to have counsel review this Agreement, and this Agreement shall be liberally construed in favor of DU's use of the Easement Area as a wetland mitigation project. Any ambiguities in this Agreement and questions as to the validity of any of its specific provisions shall be resolved in favor of DU so as to preserve DU's use of the Easement Area as a wetland mitigation project.

21. **HEADINGS.** The headings in this Agreement are inserted only for the purpose of convenient reference and shall not control or affect the meaning or construction of any provision of this Agreement.

22. **COUNTERPARTS.** This Agreement may be executed in identical counterparts, all of which executed counterparts shall constitute one complete document.

23. **NOTICES.** All notices, requests, demands, approvals, or other communications hereunder shall be in writing and addressed as follows:

If to House Lot Owner:	Jamie J. Carlone 2670 West Blood Road East Aurora, NY 14052
If to DU:	Ducks Unlimited, Inc. Attn: Director of Land Protection One Waterfowl Way Memphis, TN 38120
With Copy to:	Ducks Unlimited, Inc. Attn: Manager of Conservation Services - Mitigation Great Lakes/Atlantic Regional Office 7322 Newman Blvd., Building 1 Dexter, MI 48130

All such notices, requests, demands, and other communications shall be deemed to have been served if delivered by hand; by certified United States mail, return receipt requested, with proper postage prepaid; or by such commercial delivery service as provides proof of delivery.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement in the manner appropriate to each, effective as of the last date executed below.

HOUSE LOT OWNER:
Jamie J. Carlone

By: Jamie J Carlone
Jamie J. Carlone

State of New York

County of Erie

On 11/25/20 before me personally came JAMIE J. CARLONE personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies) and that by his/her/their signature(s) on the instrument, the individual(s), or the person on behalf of which the individual(s) acted, executed the instrument.

(Seal)

FRANCIS R. CIURA
Notary Public, State of New York
Qualified in Erie County
My Commission Expires July 30, 2021

Notary Public
Printed Name: _____
My Commission Expires: _____

DUCKS UNLIMITED, INC.

By: D-RBL

Printed Name: Dana Blunck

Title: Chief Financial Officer

State of Tennessee
County of Shelby

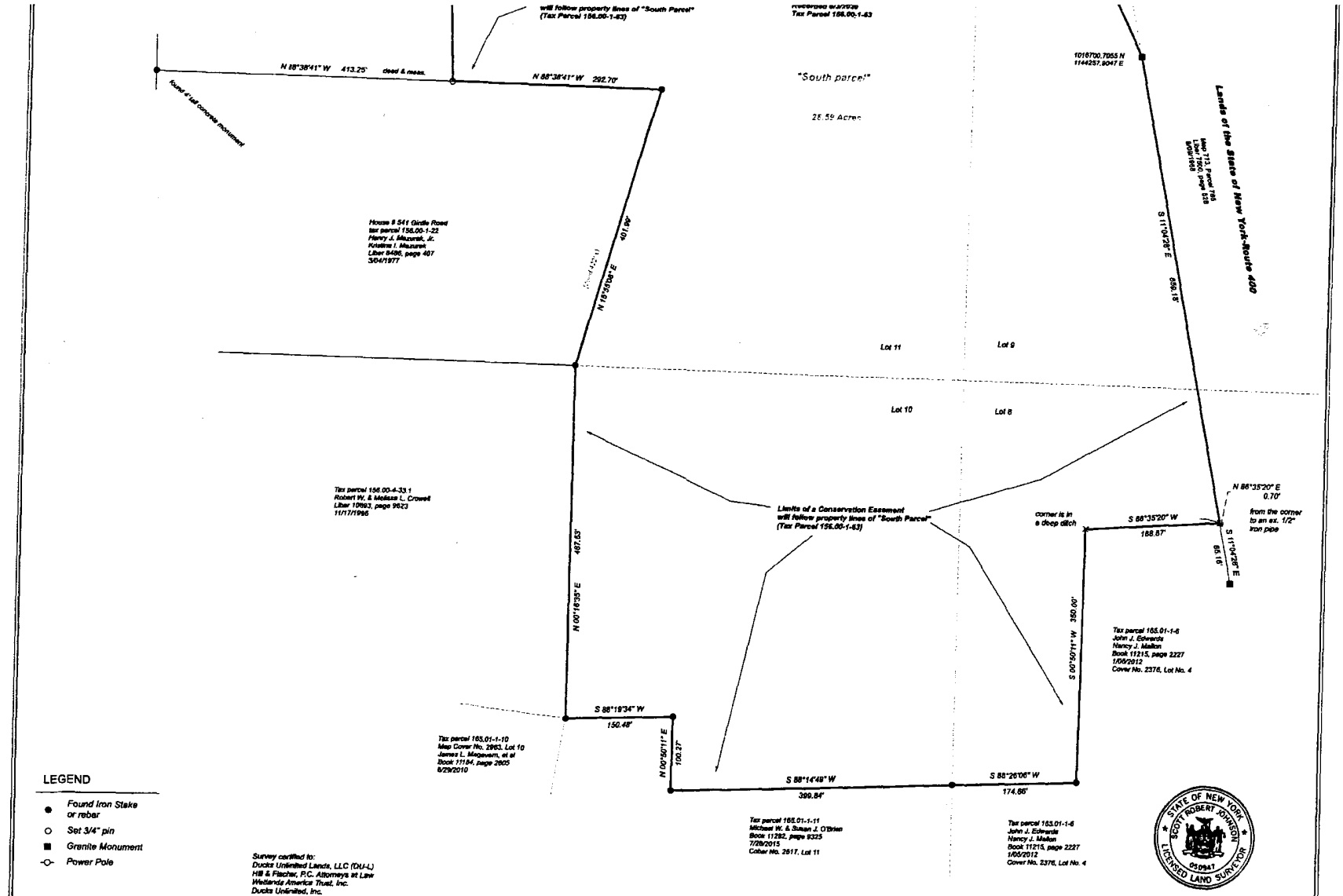
On this 24th day of November, 2020 Dana Blunck personally appeared before me and voluntarily executed the foregoing **Site Access, Maintenance, and Overland Flowage Easement**, which he acknowledged he is authorized to sign as the CFO of **DUCKS UNLIMITED, INC.**

In witness whereof, I hereunto set my hand and official seal.

Jennifer Roy
Notary Public
Printed Name: Jennifer Roy
My Commission Expires: 9/7/22

(Seal)

JENNIFER ROY
STATE OF TENNESSEE NOTARY PUBLIC
COUNTY OF SHELBY
My Commission Expires September 7, 2022



LEGEND

- Found Iron Stake or rebar
- Set 3/4" pin
- Granite Monument
- Power Pole

80' 0 80' 160'

Survey certified to:
Ducks Unlimited Lands, LLC (DU-L)
Hill & Fischer, P.C. Attorneys at Law
Wetlands America Trust, Inc.
Ducks Unlimited, Inc.
Jamie Carlone
Sheridan Meadows Agency, LLC
Premium Mortgage Corporation
Cheryl Stein Law Firm, PLLC
I hereby certify to the parties listed on this plat, that this survey is true and correct to the best of my knowledge and belief.
This certification is not transferable to additional lending institutions or to subsequent owners.

THIS MAP IS NOT VALID UNLESS IT CONTAINS AN ORIGINAL SEAL AND SIGNATURE

Plat of a survey for

Ducks Unlimited Lands

2670 West Blood Road-Town of Elma
County of Erie, State of New York
Part of Lots 8, 9, 10, & 11, Town 10, Range 5 of the Buffalo Creek Reservation

Job No. 4846-19
Dated: January 28, 2020
Revised: 10/14/2020; Updated for Ducks Unlimited

Note: the date shown on this plat is the date of the completion of the field survey work.
This map is void if used with an affidavit of no change.
This survey was prepared with the benefit of a search no. 2010-68294 dated 12/09/2019 prepared by Holland Land Title & Abstract Company, Inc.
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Only originals of this survey map, marked with an original of an embossed seal, and signed in red, shall be considered to be true, valid survey maps.
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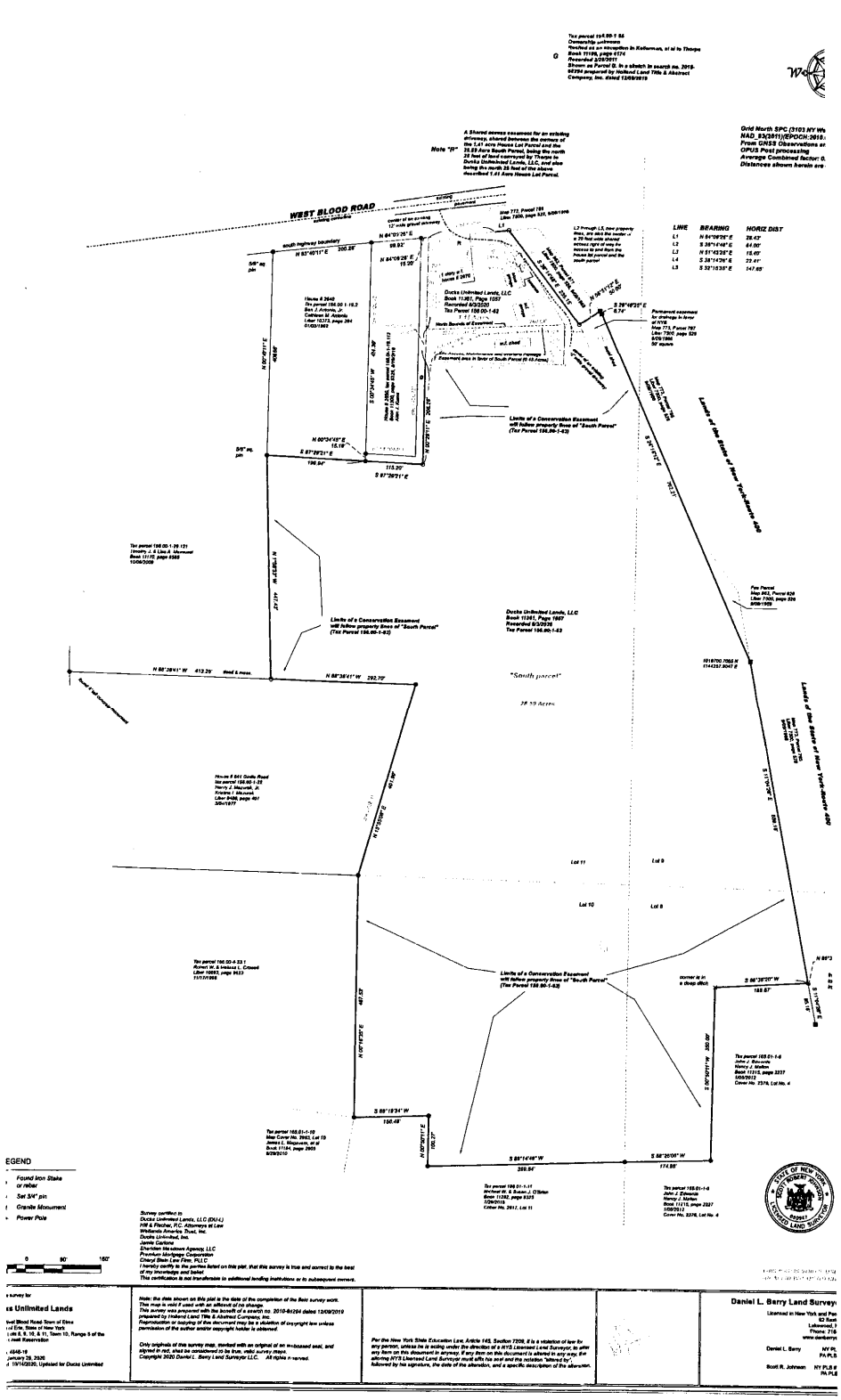
Per the New York State Education Law, Article 145, Section 7209, it is a violation of law for any person, unless he is acting under the direction of a NYS Licensed Land Surveyor, to alter any item on this document in anyway. If any item on this document is altered in any way, the altering NYS Licensed Land Surveyor must affix his seal and the notation "altered by", followed by his signature, the date of the alteration, and a specific description of the alteration.

Daniel L. Barry Land Surveyor LLC
Licensed in New York and Pennsylvania
92 Baxter Avenue
Lakewood, NY 14750
Phone: 716-763-1254
www.danbarrysurveyor.com

Daniel L. Barry NY PLS # 049433
PA PLS # 37799-R

Scott R. Johnson NY PLS # 50947
PA PLS # 075385

Travaglia PC


WEST BLOOD ROAD
"South parcel"
79.59 Acres
Lands of the State of New York-Route 400
Ducks Unlimited Lands, LLC
Book 11361, Page 1007
Recorded 6/3/2020
Tax Parcel 166.00-1-43
Limits of a Conservation Easement will follow property lines of "South Parcel" (Tax Parcel 166.00-1-43)
Note "R"
LINE BEARING HORIZ DIST
L1 N 84°09'26" E 39.43'
L2 S 38°14'46" E 64.00'
L3 N 51°43'26" E 15.45'
L4 S 38°14'26" E 23.91'
L5 S 32°16'39" E 147.65'
Grid North SPC (3103 NY We
NAD_83(2011)/EPOCH:2010.
From GNSS Observations at
OPUS Post processing
Average Combined factor: 0.
Distances shown herein are
EGEND
Found iron Stake or rebar
Set 3/4" pin
Granite Monument
Power Pole
Survey certified to
Ducks Unlimited Lands, LLC (DUL)
Hill & Fischer, P.C. Attorneys at Law
Midlands Amerika Trust, Inc.
Ducks Unlimited, Inc.
Jamie Carbone
Sheridan Mckown Agency, LLC
Premium Mortgage Corporation
Cheryl Stein Law Firm, PLLC
I hereby certify to the parties listed on this plat, that this survey is true and correct to the best of my knowledge and belief.
This certification is not transferable to additional lending institutions or to subsequent owners.
Daniel L. Berry Land Surveyor
Licensed in New York and Pen
82 East
Lakewood, N
Phone: 716
www.danberry
Daniel L. Berry NY PL
PA PLS
Scott R. Johnson NY PLS #
PA PLS
Note: the date shown on this plat is the date of the completion of the field survey work.
This map is valid if used with an affidavit of no change.
This survey was prepared with the benefit of a search no. 2018-84294 dated 12/09/2019 prepared by Instanet Land Title & Abstract Company, Inc.
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Only originals of this survey map, marked with an original of an embossed seal, and signed in red, shall be considered to be true, valid survey maps.
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Ducks Unlimited Lands
Lands of Town of Elma
Lots 8, 9, 10, & 11, Town 10, Range 5 of the
Reservation
4846-16
January 28, 2020
10/14/2020, Updated for Ducks Unlimited